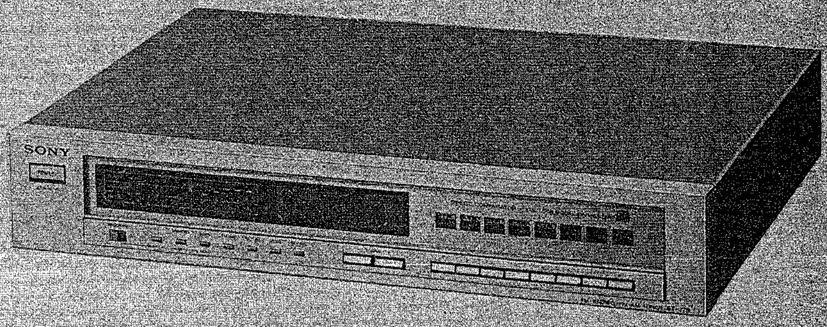
ST-J75

US Model
AEP Model
UK Model



FM STEREO TUNER

SPECIFICATIONS

GENERAL

System:	PLL crystal-locked digital synthesizer system
Power Requirements:	US model 120 V ac, 60 Hz AEP, UK model 110, 120, 220 or 240 V ac adjustable, 50/60 Hz
Power Consumption:	US model: 20 W AEP, UK model: 18 W
Dimensions:	Approx. 430 (w) x 80 (h) x 315 (d) mm 17 (w) x 3 1/4 (h) x 12 1/2 (d) inches including projecting parts and controls
Weight:	US model Approx. 4.6 kg (10 lb 2 oz) net Approx. 5.4 kg (11 lb 15 oz) in shipping carton AEP, UK model Approx. 4.8 kg (10 lb 10 oz) net Approx. 5.6 kg (12 lb 6 oz) in shipping carton

TUNER SECTION

Tuning Range:	87.5 MHz – 108 MHz
Antenna Terminals:	300 Ω, balanced 75 Ω, unbalanced coaxial input
Intermediate Frequency:	10.7 MHz
Sensitivity at 50dB Quieting: (US model)	16.8 dBf, 3.8 μV (mono) 37.3 dBf, 40 μV (stereo)
Sensitivity at 46dB Quieting: (40kHz deviation) (AEP, UK model)	3.8 μV (mono) 40 μV (stereo)
Usable Sensitivity:	US model 10.8 dBf, 1.9 μV AEP, UK model 1.4 μV (S/N = 26 dB, 40 kHz deviation) 1.9 V, 10.8 dBf (IHF)
Limiting Threshold: (AEP, UK model)	1.2 μV

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®
SERVICE MANUAL

S/N Ratio:

	US model	AEP, UK model	
		40kHz deviation	75kHz deviation
mono	92dB	92dB	87dB
stereo	86dB	86dB	81dB

Harmonic Distortion:

	mono	stereo
at 100Hz	0.05%	0.08%
at 1kHz	0.05%	0.07%
at 10kHz	0.05%	0.2%

IM distortion: (40kHz deviation) 0.05 % (mono), 0.07 % (stereo)

Separation:

	US model	AEP, UK model
at 100Hz	55dB	50dB
at 1kHz	60dB	55dB
at 10kHz	45dB	40dB

Frequency Response: US model
30 Hz – 15 kHz $^{+0.2}_{-0.5}$ dB
AEP, UK model
40 Hz – 12.5 kHz ± 0.2 dB
30 Hz – 15 kHz $^{+0.2}_{-0.5}$ dB

Selectivity: 30 dB at 200 kHz, 80 dB at 300 kHz
Capture Ratio: 1.5 dB
AM Suppression Ratio: 65 dB
Image Response Ratio: 95 dB
IF Response Ratio: 100 dB
Spurious Response Ratio: 100 dB
RF Intermodulation: 78 dB (IHF), 100 dB (2.4 MHz)
Sub-carrier Product Ratio: US model: 75 dB
AEP, UK model: 66 dB

Muting and Auto-tuning Threshold:

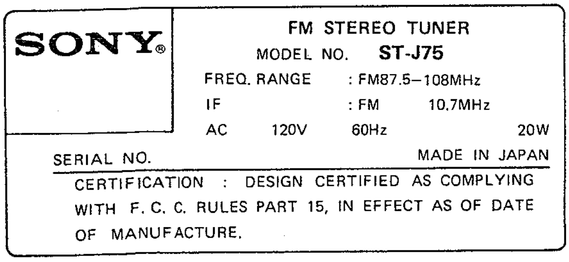
	US model	AEP, UK model
LOW	25dBf, 10μV	10μV
HIGH	45dBf, 100μV	100μV

Output Level/ Impedance:
(75kHz deviation) 750 mV, 600 Ω
Calibrating Tone: US model
50 % modulation (37.5 kHz deviation), 400 Hz
AEP, UK model
375 mV (37.5 kHz deviation), 400 Hz

MODEL IDENTIFICATION

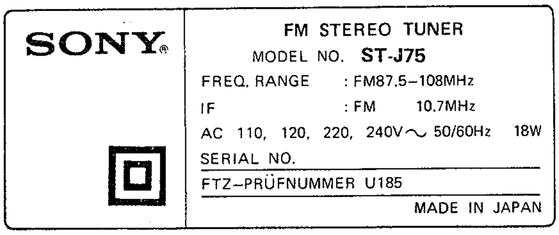
– Specification Label –

US model



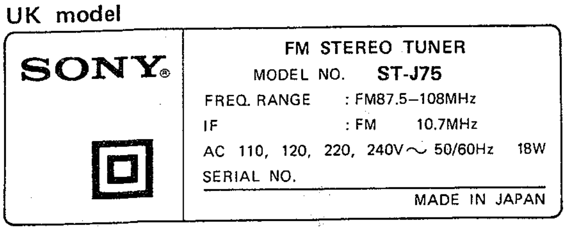
SONY®
FM STEREO TUNER
MODEL NO. ST-J75
FREQ. RANGE : FM87.5–108MHz
IF : FM 10.7MHz
AC 120V 60Hz 20W
SERIAL NO. MADE IN JAPAN
CERTIFICATION : DESIGN CERTIFIED AS COMPLYING WITH F. C. C. RULES PART 15, IN EFFECT AS OF DATE OF MANUFACTURE.

AEP model



SONY®
FM STEREO TUNER
MODEL NO. ST-J75
FREQ. RANGE : FM87.5–108MHz
IF : FM 10.7MHz
AC 110, 120, 220, 240V∿ 50/60Hz 18W
SERIAL NO.
FTZ–PRÜFNUMMER U185
MADE IN JAPAN

UK model



SONY®
FM STEREO TUNER
MODEL NO. ST-J75
FREQ. RANGE : FM87.5–108MHz
IF : FM 10.7MHz
AC 110, 120, 220, 240V∿ 50/60Hz 18W
SERIAL NO.
MADE IN JAPAN

Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

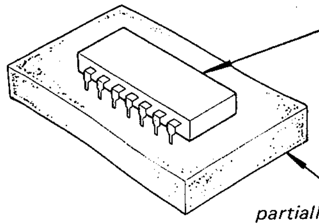

IC
partially conductive unrethane-polyester cushion

Fig. A

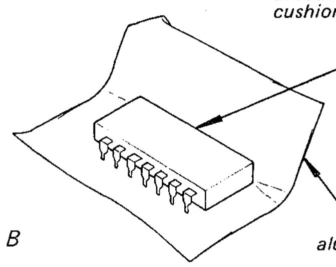

IC
aluminum foil

Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

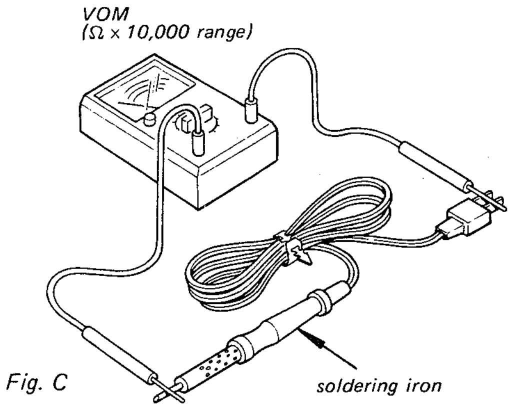

VOM
(Ω x 10,000 range)
soldering iron

Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

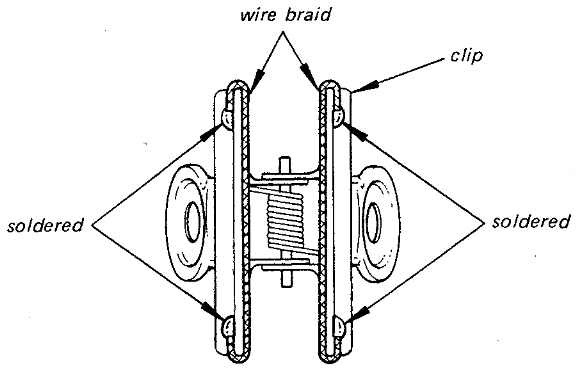

wire braid
clip
soldered
soldered

Fig. D

Make sure that there is no solder on the inside.

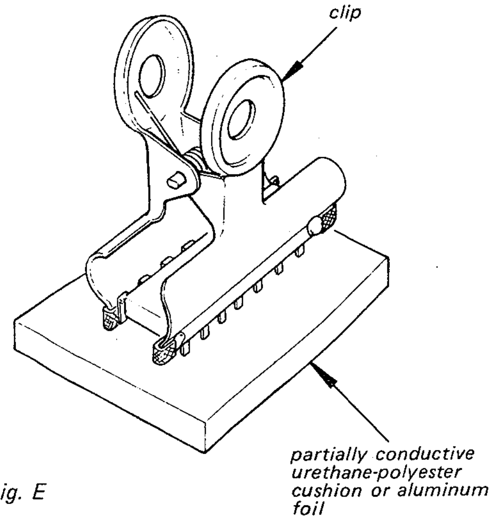

clip
partially conductive urethane-polyester cushion or aluminum foil

Fig. E

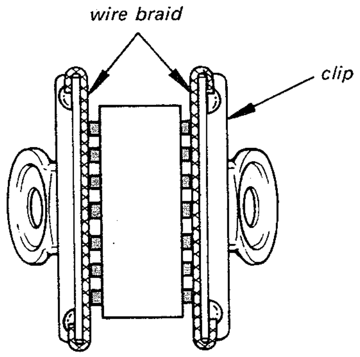

wire braid
clip

Fig. F

Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

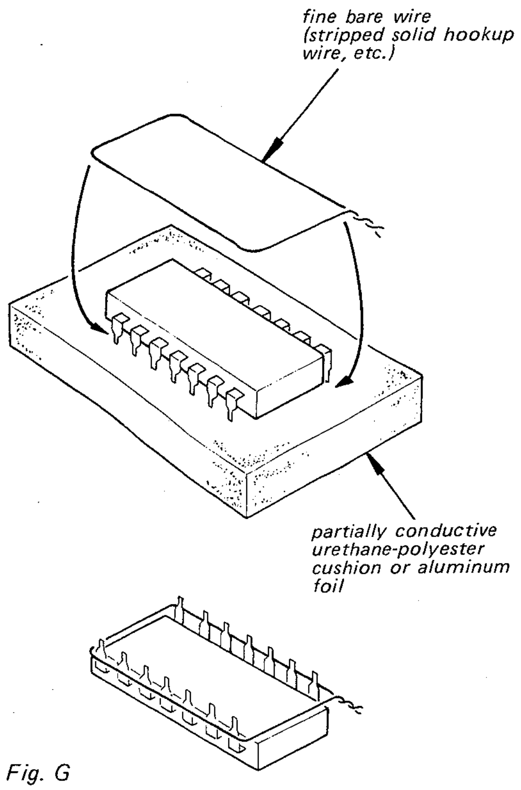

fine bare wire (stripped solid hookup wire, etc.)
partially conductive urethane-polyester cushion or aluminum foil

Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

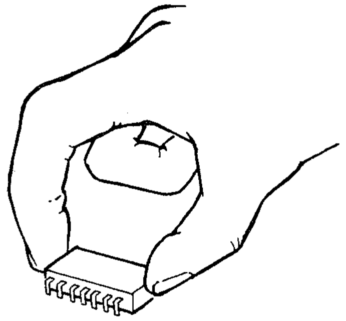


Fig. H

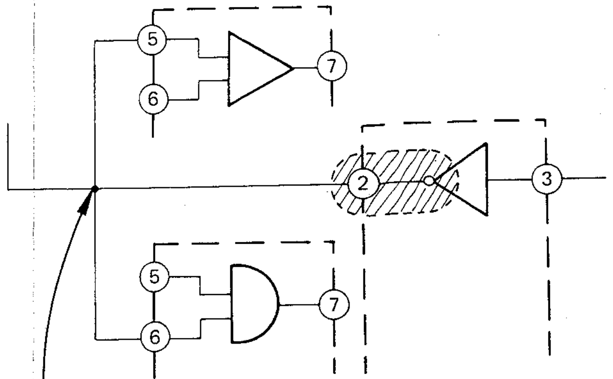
5. Method of Mounting
   Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B- voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:

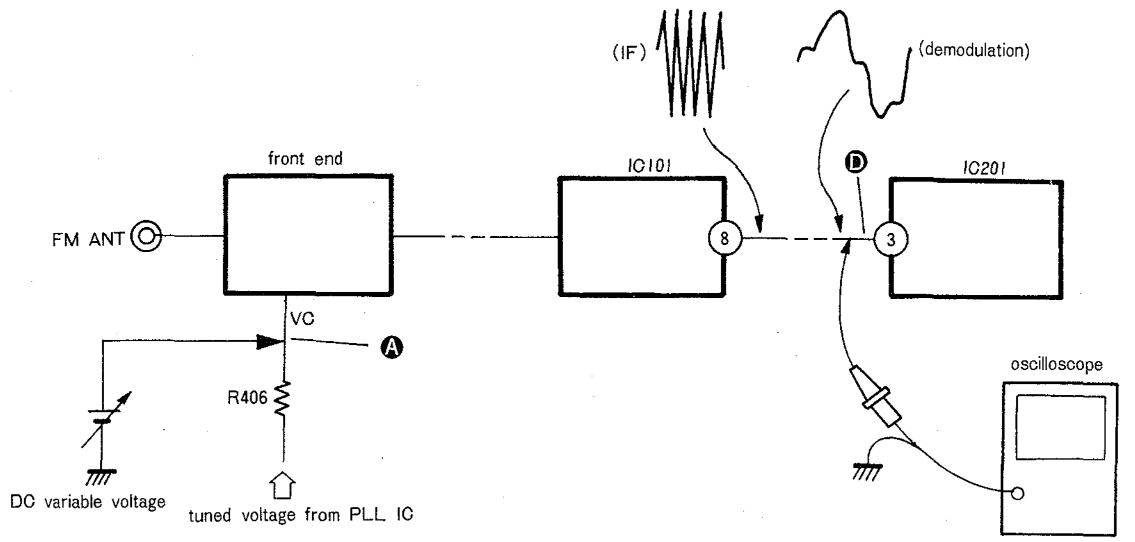


If this line is grounded, or touches B+ or B- bus . . . , the output stage of this IC will be destroyed.

Fig. I

SECTION 1
OUTLINE

1-1. CIRCUIT DESCRIPTION


(IF)
(demodulation)
front end
IC101
IC201
D
8
3
FM ANT
VC
A
R406
oscilloscope
DC variable voltage
tuned voltage from PLL IC

TROUBLE CHECKS FOR FM RECEPTION

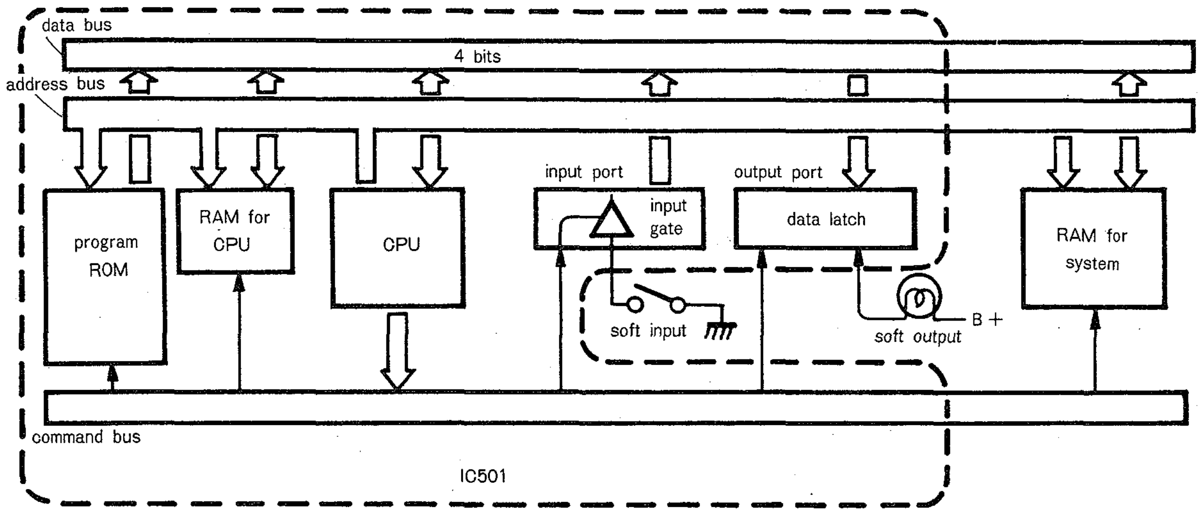
When FM signal can not be received, make above connection. Regardless of the computer or the PLL synthesizer, trouble checks for FM reception can be made.

How to Check

1. Connect an oscilloscope or an earphone with point Ⓓ.
2. Check whether there is noise or broadcast on an oscilloscope or through an earphone.
3. Make sure that stations can be received one after another when changing DC variable voltage from approximately 0V to 20V.

µPD533C-073 (IC501)

IC501 (µPD553C-073) is a one-chip microcomputer. Configuration of the computer system is shown below.

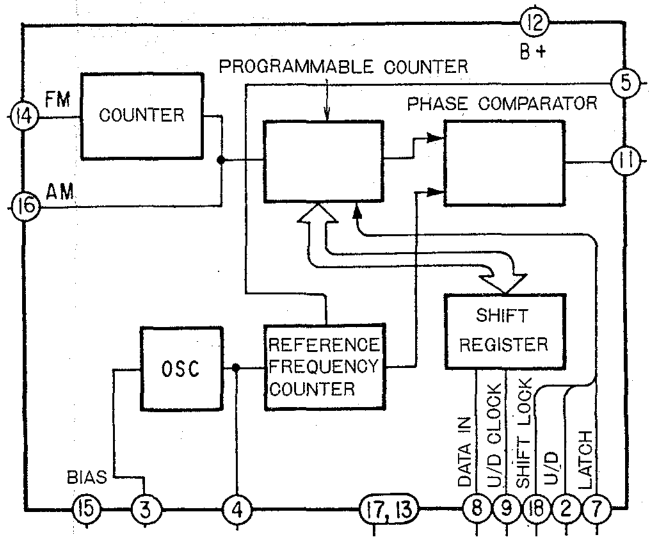

data bus
4 bits
address bus
program ROM
RAM for CPU
CPU
input port
input gate
output port
data latch
RAM for system
soft input
soft output
B+
command bus
IC501

Above figure is an example of the computer system composed by six individual ICs. µPD553C has functions of ICs surrounded by the broken line. In the above figure there is only one pair of I/O ports and I/O can be made in four-bit parallel manner. This set has nine pairs of the ports each of which is four bits except one port which is three.

RAM on the far right is the memory capable of presetting up to 8 stations and maintains the memorized information for a long time without a battery back-up after the power switch is turned off. Suffix of IC501, that is 073, shows that the program for ST-J75 has already been written in IC501.

CX778 (IC401)

IC401 is the PLL synthesizer to control local oscillator frequency by comparing it with reference frequency. As the local oscillator output is directly (without any additional prescaler) supplied to the programmable counter section, reference frequency is as high as the channel spacing frequency. The benefits owing to this are the stable and almost ripple-less local oscillation and reduced spurious radiation.


12
B+
PROGRAMMABLE COUNTER
PHASE COMPARATOR
FM
14
COUNTER
AM
16
5
11
SHIFT REGISTER
OSC
REFERENCE FREQUENCY COUNTER
BIAS
DATA IN
U/D CLOCK
SHIFT LOCK
U/D
LATCH
15
3
4
17, 13
8
9
18
2
7

As shown above, the programmable counter for changing frequency gets the data through the shift register.

Function of Terminals

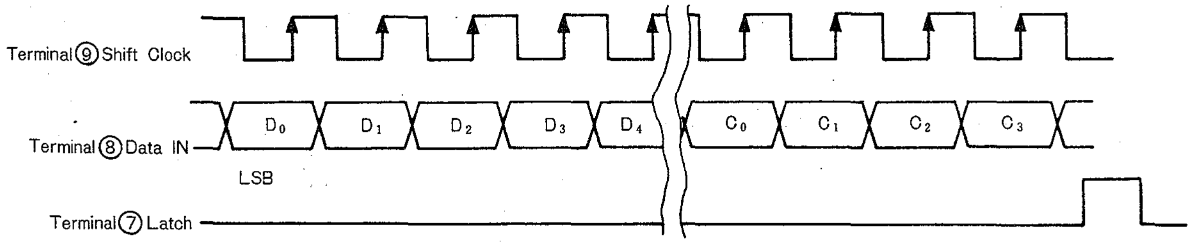
Pin No.	Mark	Function
1	Data Check	not used in this set
2	U/D	input terminal for selecting mode of built-in UP/DOWN counter HIGH level: UP mode LOW level: DOWN mode
3, 4	X_1, X_0	terminal for connecting crystal oscillator (7.2MHz)
5	Sys CLK	output terminal for system clock in phase comparator 360kHz
6	Fref	output terminal for reference frequency
7	Latch	input terminal for signal to let the *shift register latch the data* Data is latched at HIGH level
8	Data IN	input terminal for data
9	Shift CLK	input terminal for clock to let data input in 16-bit parallel manner
11	PD	output terminal for phase comparator (tristate)
12	V_{DD}	power supply (+5V)
13	Fout	output terminal for divided signal from the programmable counter
14	FM IN	input terminal for signal from FM local oscillator
15	Sub	substrate
17	GND	ground
18	U/D CLK	input terminal for UP/DOWN clock of UP/DOWN counter

---

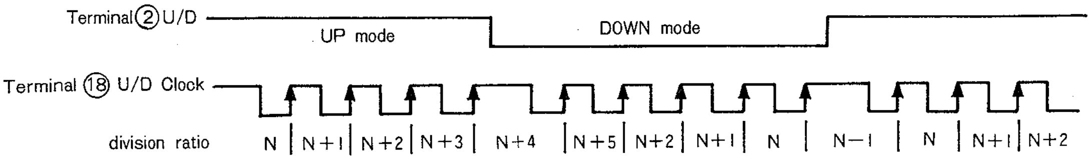
Data Input Procedure from Microcomputer:

- Setting of division ratio

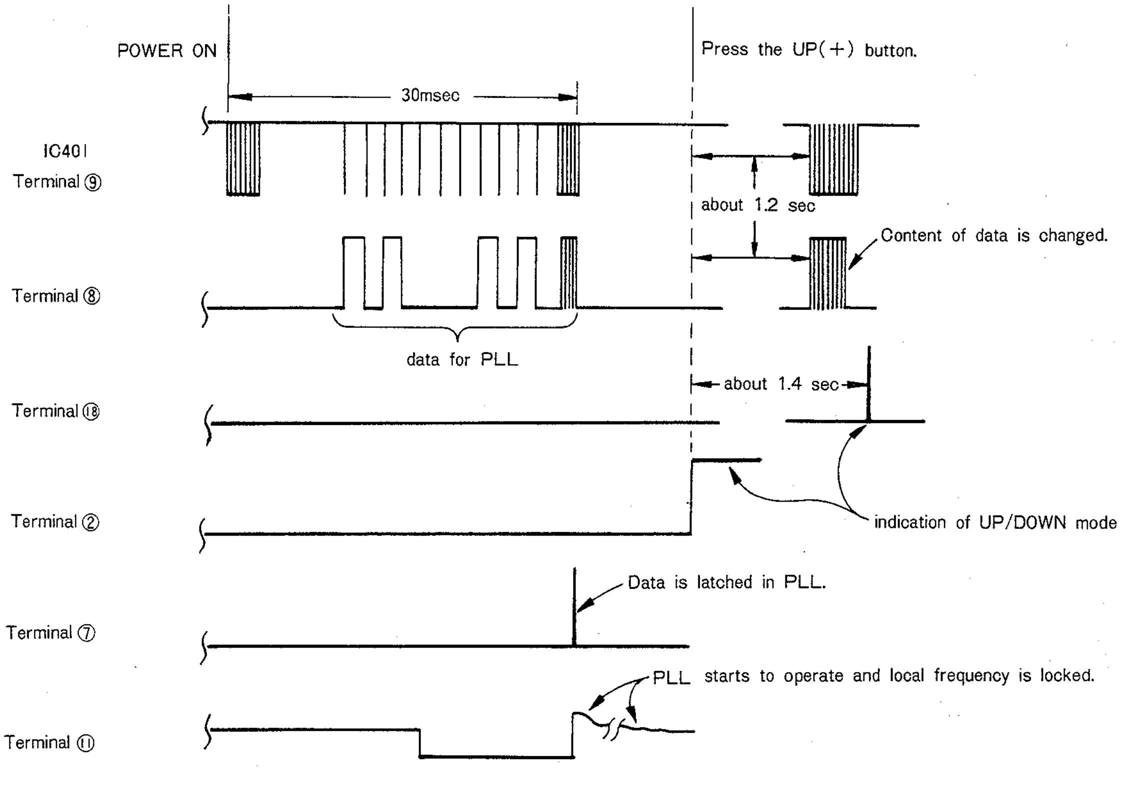
Data for setting division ratio of the programmable counter, comparison frequency and the pin for input are input by 16-bit serial manner by using terminals DATA IN, SHIFT CLOCK and LATCH. The first 12 bits ($D_0 - D_{11}$) of this 16-bit data works for setting division ratio of the programmable counter and the last 4 bits ($C_0 - C_3$) works for controlling comparison frequency. Timing chart when data are input is as follows.


Terminal⑨Shift Clock
Terminal⑧Data IN
D₀
D₁
D₂
D₃
D₄
C₀
C₁
C₂
C₃
LSB
Terminal⑦Latch

- Input waveform of UP/DOWN pin is as follows.


Terminal② U/D
UP mode
DOWN mode
Terminal ⑱ U/D Clock
division ratio
N
N+1
N+2
N+3
N+4
N+5
N+2
N+1
N
N−1
N
N+1
N+2

Each terminal receives instructions from the CPU which are expressed with the combination of "0" and "1". There is no meaning in measuring waveform at each terminal with an oscilloscope, because combination of "0" and "1" changes every moment without any rule. Few examples are shown below.


POWER ON
Press the UP(+) button.
30msec
IC401
Terminal ⑨
about 1.2 sec
Content of data is changed.
Terminal ⑧
data for PLL
about 1.4 sec
Terminal ⑱
Terminal ②
indication of UP/DOWN mode
Data is latched in PLL.
Terminal ⑦
PLL starts to operate and local frequency is locked.
Terminal ⑪

MEMORY IC CX761 (IC502)

Outline of CX761:

(a) This is a non-volatile memory IC. Has 260 (16 words x 16 bits + 4 bits) non-volatile memory transistors built in, and works for reading, erasure and writing the data word.

(b) Because of being a non-volatile type memory, this IC maintains the memorized informations for a long time without a battery back-up after the power switch is turned off.

(c) Word address is done by the BCD inputs.

(d) Silicon-type P-channel enhancement NMOS IC construction.

(e) 14-pin molded DIP casing.

Function of Terminals:

Terminal	IN or OUT	Function
1	IN	Word address D
2	IN	Word address C
3	IN	Word address B
4	IN	Word address A
5	IN	Power supply input
6	IN/OUT	Writing and erasure control inputs/memory-BUSY output
7	IN	Power supply input
8	IN/OUT	Inputs and outputs for test checkout
9	IN	Test signal
10	IN/OUT	Combined data inputs and data outputs
11	IN	Input for synchronous clock
12	IN	Input for mode control C3
13	IN	Input for mode control C2
14	IN	Input for mode control C1

Mode Control Signals

MODE INPUT	SB	RTNS	WTNS	WRT	MSTNS	ERS	READ	MCTNS
C1	0	1	0	1	0	1	0	1
C2	0	0	1	1	0	0	1	1
C3	0	0	0	0	1	1	1	1

Note:

SB: Standby

RTNS: Informations of the data register (relayed by the READ operation) are put out from the D I/O terminal

WTNS: Informations to be memorized are relayed to the data register from the D I/O terminal

WRT: Memorize the informations relayed by the WTNS operation in the designated address

ERS: Clears the informations memorized in the designated address

READ: Relay the memorized informations in the disignated address to the data register

MSTNS: The control signals which follow the MSTNS operation are processed in accordance with the station memory

MCTNS: The control signals which follow the MCTNS operation are processed in accordance with the last channel memory.

IC504 (4 bits x 4 latch)

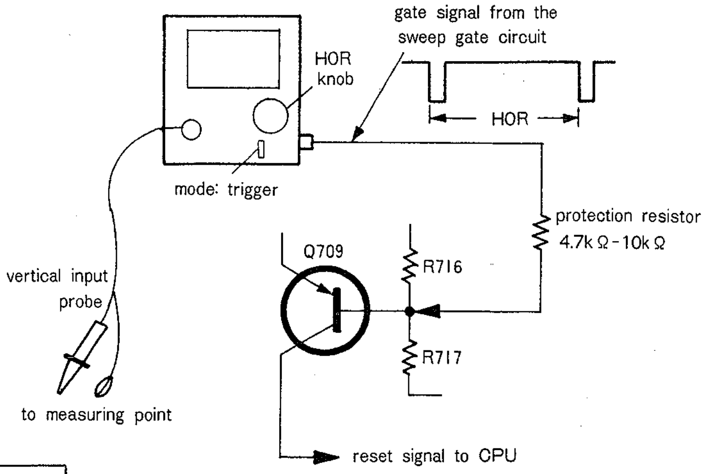
There are 4 ports for latching each of which can receive command from the CPU. The port selector signal from the CPU selects which port receives the command.

Display Function of Microcomputer

The display of this set is the dynamic light-up system which is made by the digit and the data for a segment from the CPU.

How to Check the Microcomputer with an Oscilloscope

When a microcomputer is in normal condition, programs in the CPU are executed in a certain sequence when the power switch turns on. This is owing that the ROM program is written in. Following check can be made according to the above mentioned logic.

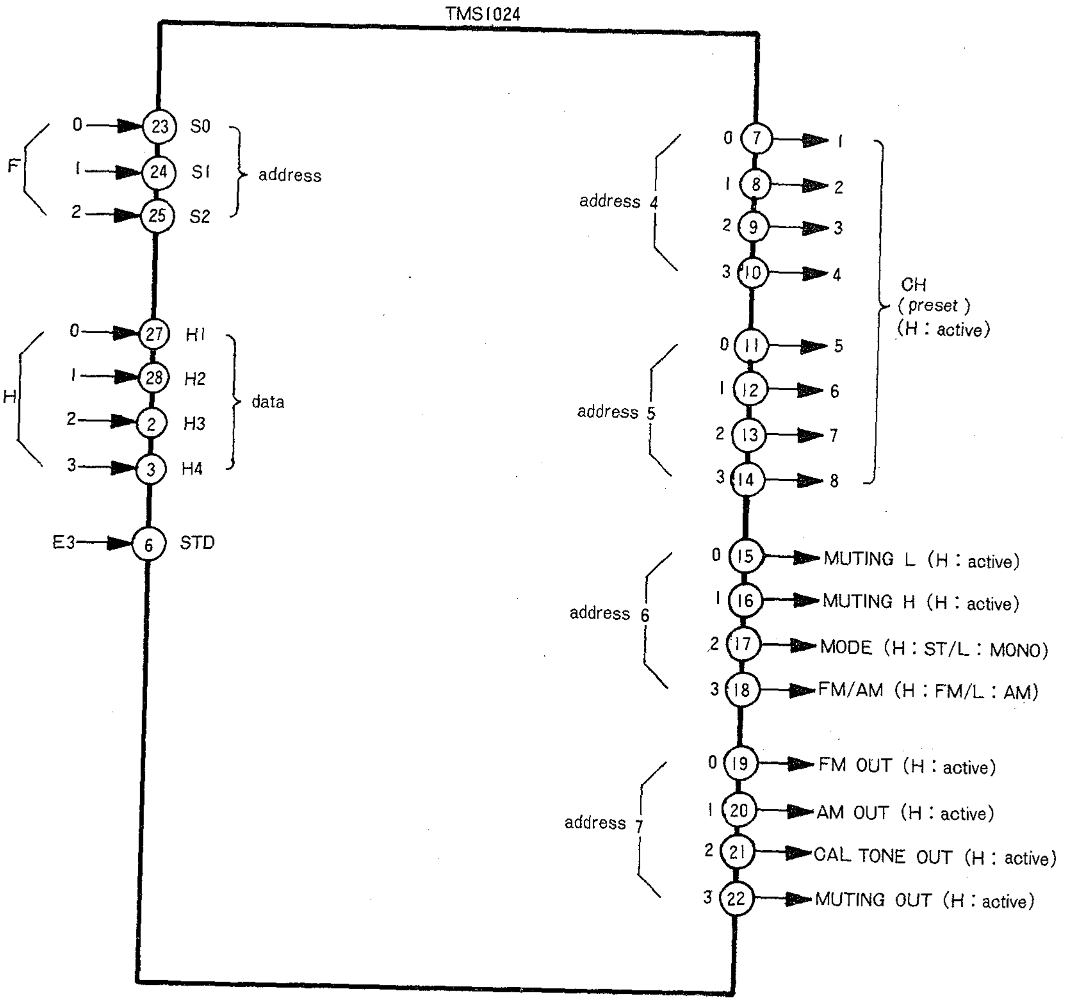


How to Check

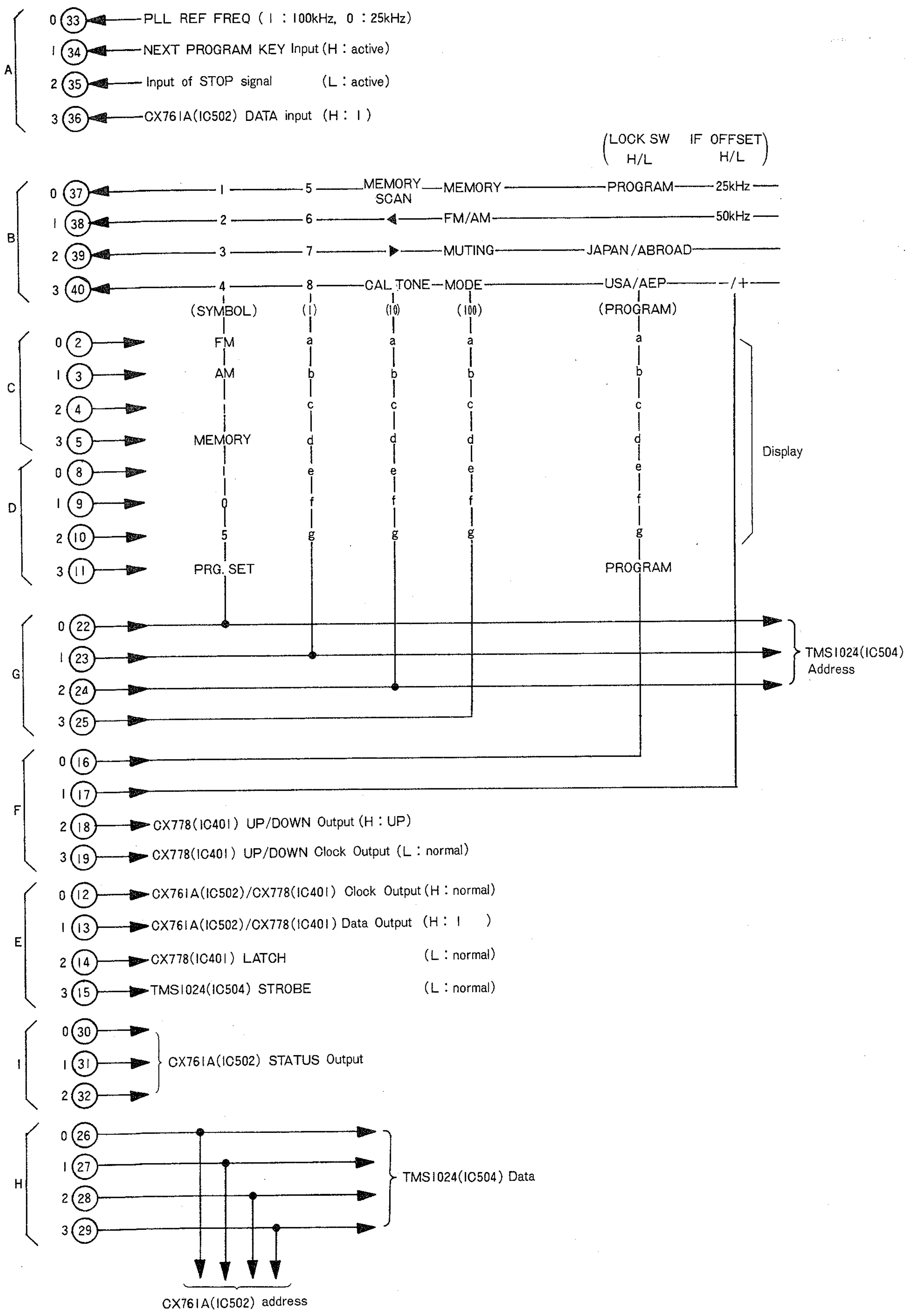
- Connect the gate output of an oscilloscope with Q709 via a protection resistor. When the oscilloscope is turned on, the CPU starts.
- oscilloscope: free running (that is, trigger mode: AUTO)
- HOR of oscilloscope: 5msec DIV

If necessary, measure each section with a probe. (The fact that the frequency is displayed on the frequency counter means that a microcomputer is in normal condition, because frequency display is made after finishing every preparation.)

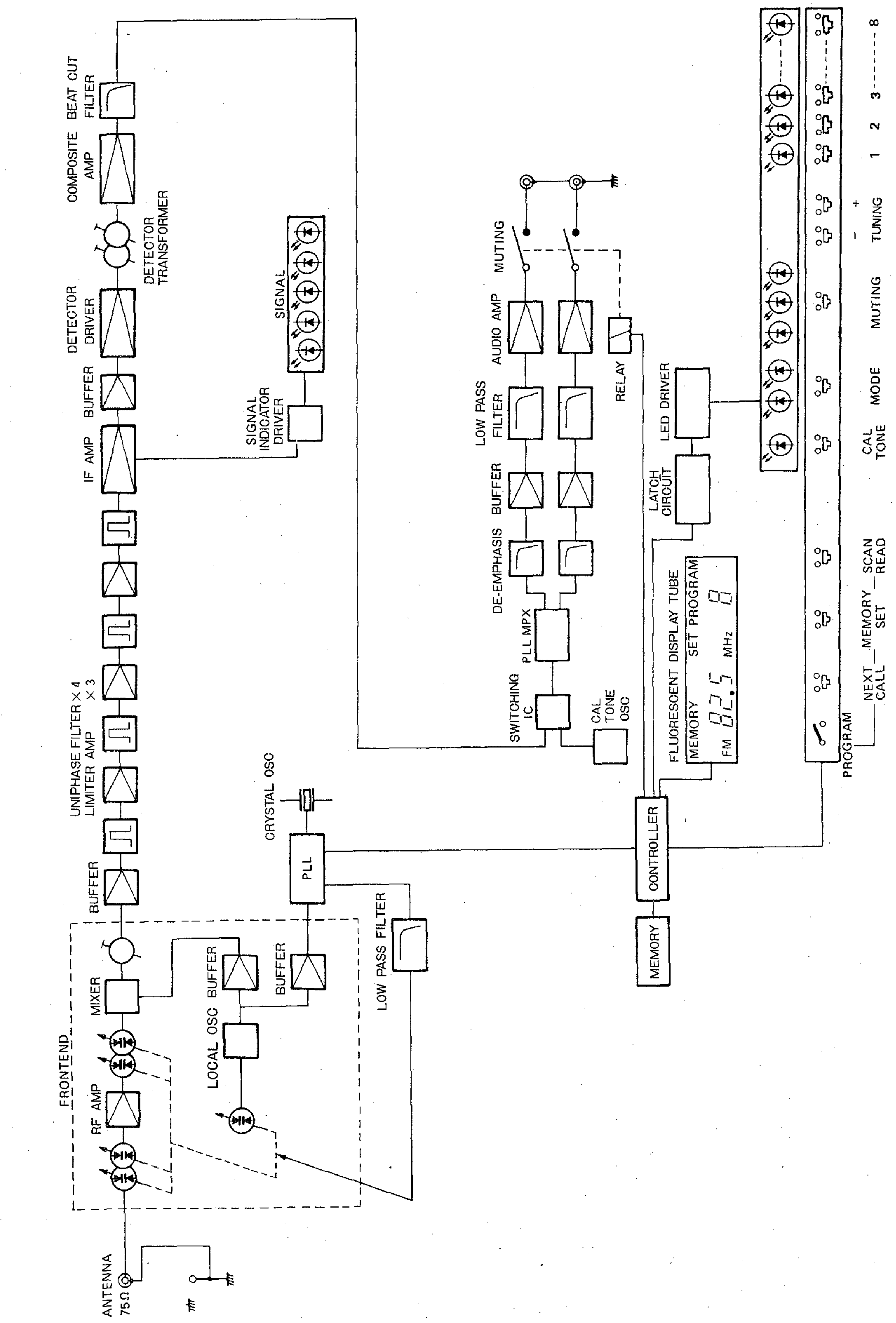
Input and Output of TMS 1024 (IC504)


TMS1024
F
0 23 S0
1 24 S1
2 25 S2
address
H
0 27 H1
1 28 H2
2 2 H3
3 3 H4
data
E3 6 STD
address 4
0 7 1
1 8 2
2 9 3
3 10 4
address 5
0 11 5
1 12 6
2 13 7
3 14 8
CH (preset) (H : active)
address 6
0 15 MUTING L (H : active)
1 16 MUTING H (H : active)
2 17 MODE (H : ST/L : MONO)
3 18 FM/AM (H : FM/L : AM)
address 7
0 19 FM OUT (H : active)
1 20 AM OUT (H : active)
2 21 CAL TONE OUT (H : active)
3 22 MUTING OUT (H : active)

Input and output of μPD553C-073


A
0 33 PLL REF FREQ (1 : 100kHz, 0 : 25kHz)
1 34 NEXT PROGRAM KEY Input (H : active)
2 35 Input of STOP signal (L : active)
3 36 CX761A(IC502) DATA input (H : 1)
(LOCK SW H/L IF OFFSET H/L)
B
0 37 1 5 MEMORY SCAN MEMORY PROGRAM 25kHz
1 38 2 6 ◀ FM/AM 50kHz
2 39 3 7 ▶ MUTING JAPAN/ABROAD
3 40 4 8 CAL TONE MODE USA/AEP −/+
(SYMBOL)
(1)
(10)
(100)
(PROGRAM)
C
0 2 FM a a a a
1 3 AM b b b b
2 4 c c c c
3 5 MEMORY d d d d
D
0 8 e e e e
1 9 f f f f
2 10 0 5 g g g g
3 11 PRG. SET PROGRAM
Display
G
0 22
1 23
2 24
3 25
TMS1024(IC504) Address
F
0 16
1 17
2 18 CX778(IC401) UP/DOWN Output (H : UP)
3 19 CX778(IC401) UP/DOWN Clock Output (L : normal)
E
0 12 CX761A(IC502)/CX778(IC401) Clock Output (H : normal)
1 13 CX761A(IC502)/CX778(IC401) Data Output (H : 1)
2 14 CX778(IC401) LATCH (L : normal)
3 15 TMS1024(IC504) STROBE (L : normal)
I
0 30
1 31
2 32
CX761A(IC502) STATUS Output
H
0 26
1 27
2 28
3 29
TMS1024(IC504) Data
CX761A(IC502) address

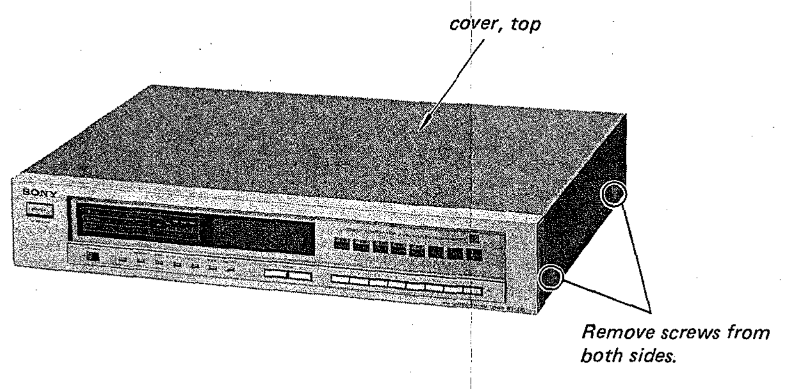
1-2. BLOCK DIAGRAM


ANTENNA 75Ω
FRONTEND
RF AMP
MIXER
LOCAL OSC
BUFFER
BUFFER
LOW PASS FILTER
CRYSTAL OSC
PLL
BUFFER
UNIPHASE FILTER × 4 × 3
LIMITER AMP
IF AMP
BUFFER
DETECTOR DRIVER
DETECTOR TRANSFORMER
COMPOSITE AMP
BEAT CUT FILTER
SIGNAL INDICATOR DRIVER
SIGNAL
SWITCHING IC
PLL MPX
DE-EMPHASIS
BUFFER
LOW PASS FILTER
AUDIO AMP
MUTING
RELAY
CAL TONE OSC
FLUORESCENT DISPLAY TUBE
MEMORY
SET PROGRAM
FM
MHz
LATCH CIRCUIT
LED DRIVER
CONTROLLER
MEMORY
PROGRAM
NEXT CALL
MEMORY SET
SCAN READ
CAL TONE
MODE
MUTING
TUNING
− +
1 2 3 8

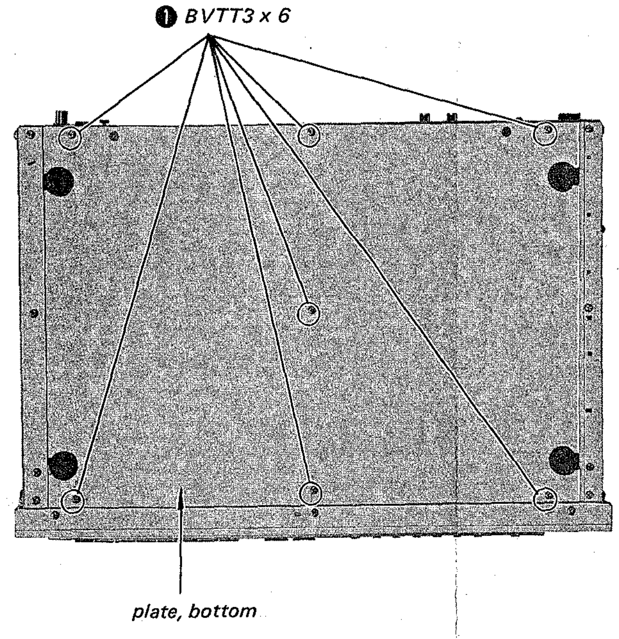
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

TOP COVER


cover, top
Remove screws from both sides.

BOTTOM PLATE


❶ BVTT3 x 6
plate, bottom

RONT

❷ F
s

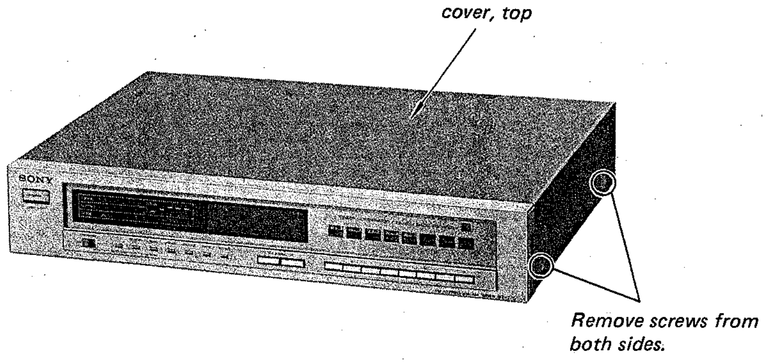
UNER

ompo
n be c
ter re

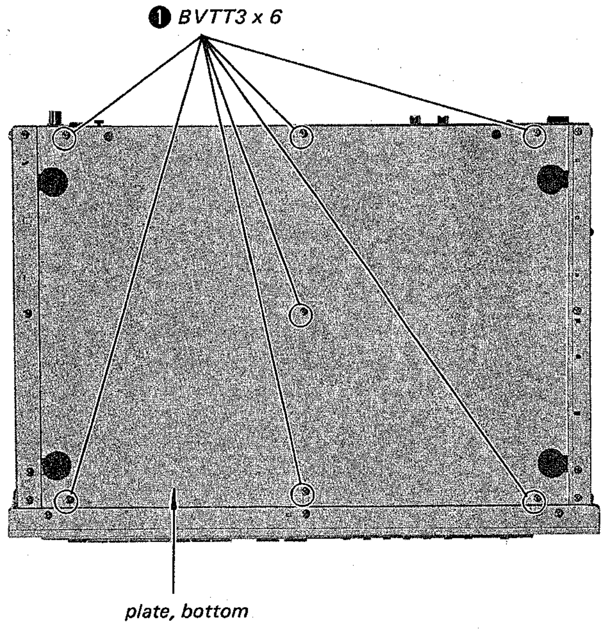
Note: Follow the disassembly procedure in the numerical order given.

SECTION 2
DISASSEMBLY

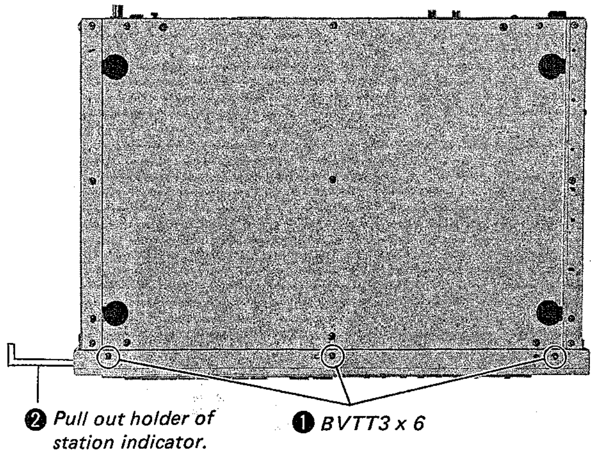
TOP COVER

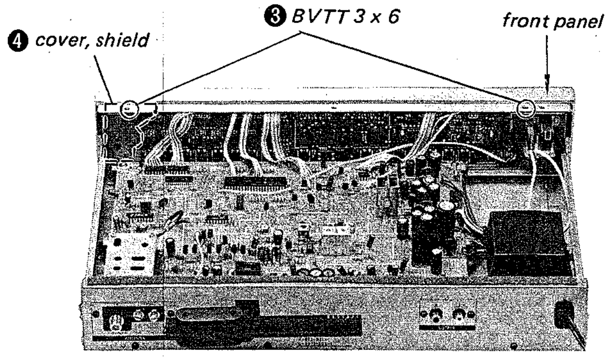

cover, top
Remove screws from both sides.

BOTTOM PLATE

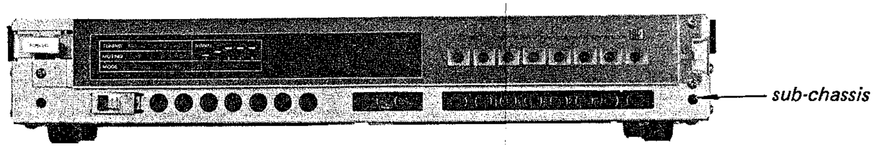

❶ BVTT3 x 6
plate, bottom

RONT PANEL

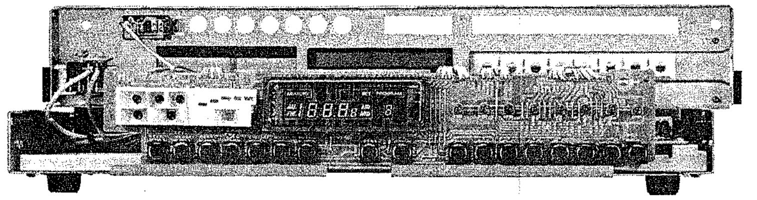

❷ Pull out holder of station indicator.
❶ BVTT3 x 6


❹ cover, shield
❸ BVTT 3 x 6
front panel

when front panel is removed:

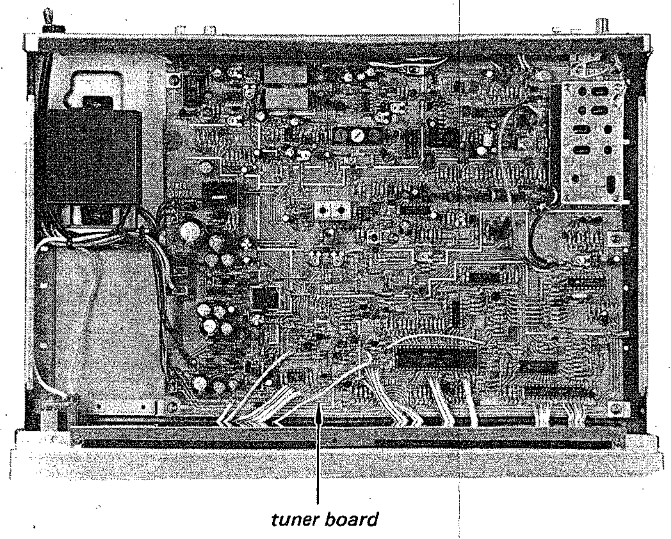

sub-chassis

when sub-chassis is removed:



UNER BOARD

omponent side of tuner board
n be checked and adjusted
ter removing bottom plate.

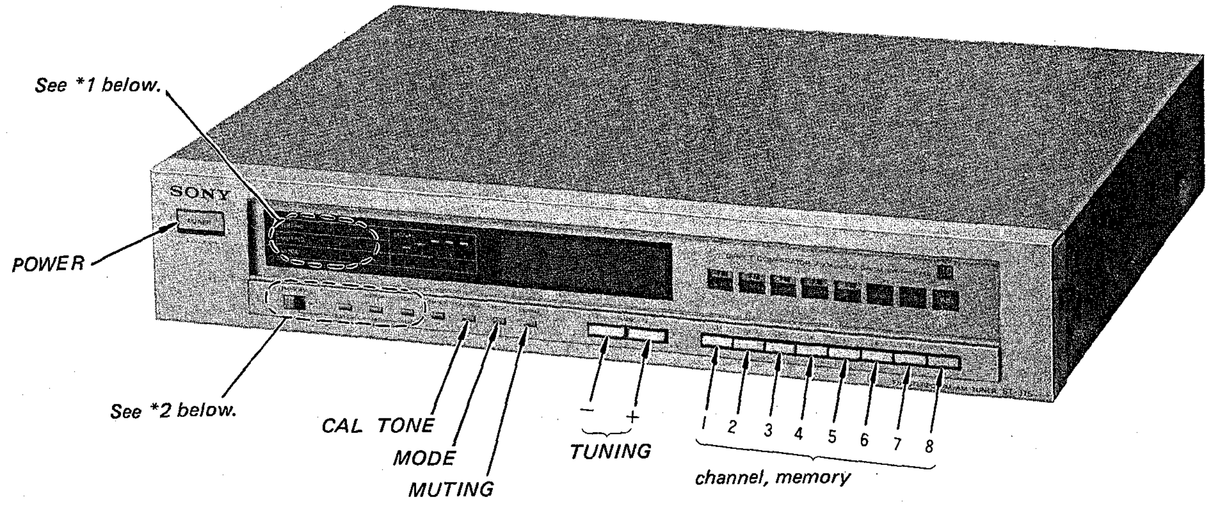

tuner board

SECTION 3
ADJUSTMENTS

3-1. ELECTRICAL ADJUSTMENT

- **Before Adjustments**

PROGRAM switch: OFF
POWER switch: ON


See *1 below.
SONY
POWER
See *2 below.
CAL TONE
MODE
MUTING
−
+
TUNING
1
2
3
4
5
6
7
8
channel, memory

* 1

TUNING	MANUAL	AUTO	AUTO
MUTING	OFF	LOW	HIGH
MODE	AUTO	STEREO	

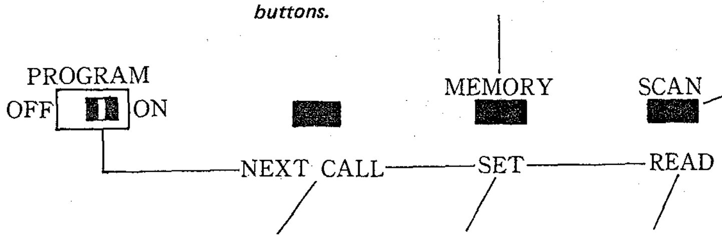
Each time MUTING switch is pressed, indication changes in sequence.

Each time MODE switch is pressed, indication "AUTO" lights up or goes off. When SCAN button is pressed, "AUTO" goes off.

* 2

Within three seconds after pressing MEMORY button, press preset buttons to memorize stations in preset buttons.

When SCAN switch is pressed, stations prememorized on the station preset buttons are received in sequence (from left to right) each for 3.5 seconds.


PROGRAM
OFF
ON
MEMORY
SCAN
NEXT CALL
SET
READ

When NEXT CALL switch is pressed, the indication of the next programmed station flickers while the station being received continues to be turned on.

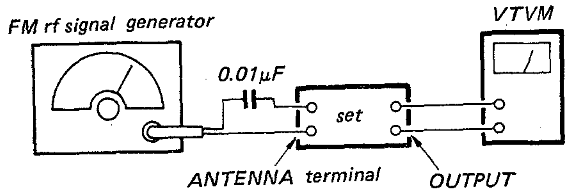
Press SET switch to program stations which will be received each time when power is on.

Press READ switch to confirm the sequence of programmed stations.

FM SECTION 1

Output Level Adjustment

Setting


FM rf signal generator
VTVM
0.01μF
set
ANTENNA terminal
OUTPUT

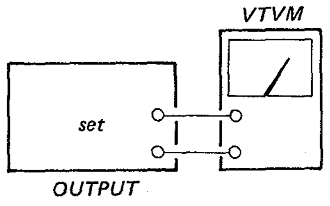
Output level: 1mV (60dB)

Procedure:

Adjust RT205 (L-CH) and RT206 (R-CH) for 0dB (0.775V) reading on VTVM.

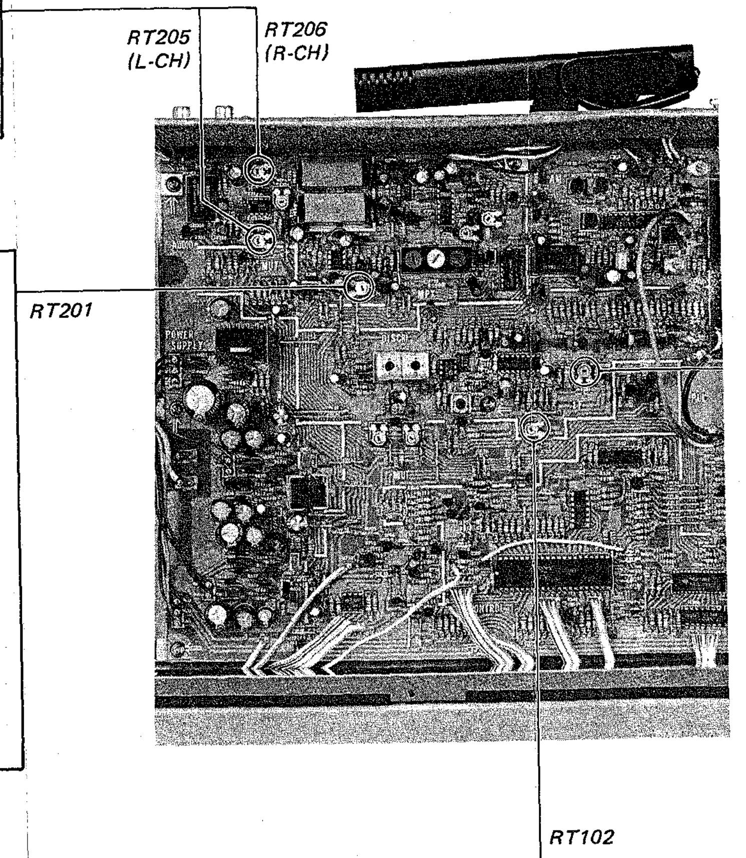
CAL TONE Level Adjustment

Setting:


VTVM
set
OUTPUT

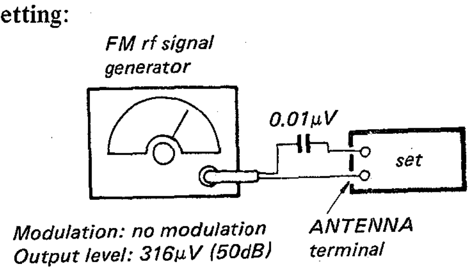
Procedure:

1. Press CAL TONE switch.
2. Adjust RT201 for −6dB (0.39V) reading on VTVM.


RT205
(L-CH)
RT206
(R-CH)
RT201
RT102

Signal Indicator Adjustment

Setting:


FM rf signal generator
0.01μV
set
ANTENNA terminal

Modulation: no modulation
Output level: 316μV (50dB)

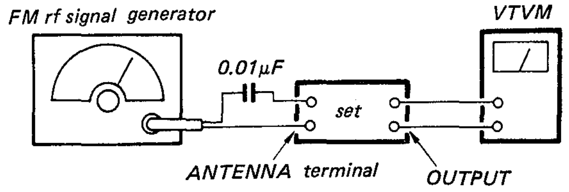
Procedure:

Adjust RT102 so that all LEDs light up.

FM SECTION 1

Output Level Adjustment

Setting


FM rf signal generator
VTVM
0.01µF
set
ANTENNA terminal
OUTPUT

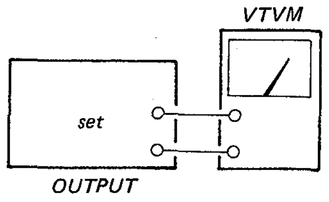
Output level: 1mV (60dB)

Procedure:

Adjust RT205 (L-CH) and RT206 (R-CH) for 0dB (0.775V) reading on VTVM.

CAL TONE Level Adjustment

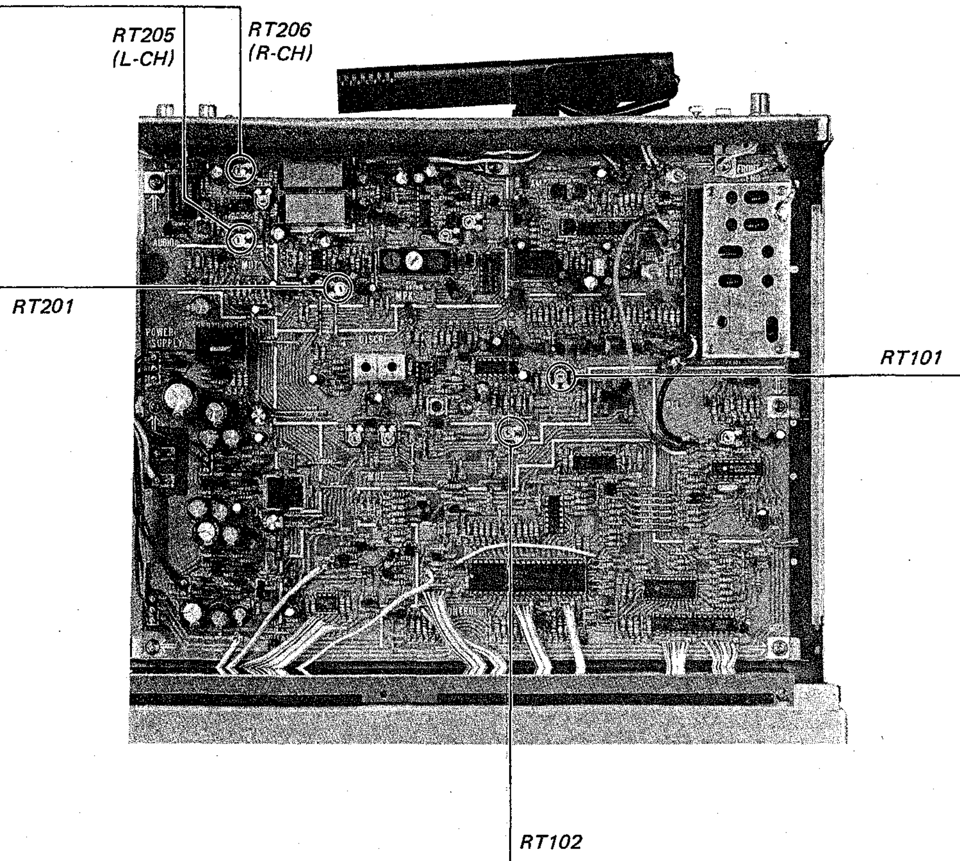
Setting:


VTVM
set
OUTPUT

Procedure:

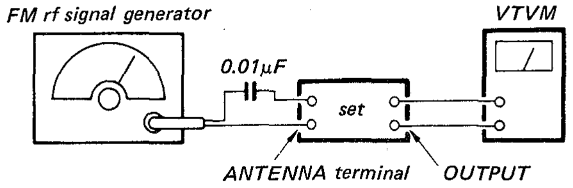
1. Press CAL TONE switch.
2. Adjust RT201 for –6dB (0.39V) reading on VTVM.

FM rf Stereo Signal	FM rf Monaural Signal
Carrier frequency: 98MHz Modulation: Audio 400Hz, 33.75kHz deviation (45%) Subchannel 38kHz 33.75kHz deviation (45%) Pilot 19kHz 7.5kHz deviation (10%)	Carrier frequency: 98MHz Modulation: 400kHz deviation (100%)


RT205 (L-CH)
RT206 (R-CH)
RT201
RT101
RT102

FM Muting Level Adjustment

Setting:


FM rf signal generator
VTVM
0.01µF
set
ANTENNA terminal
OUTPUT

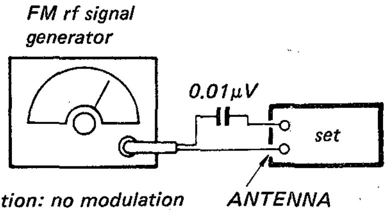
Output level: 10µV (20dB)

Procedure:

1. Indication: MUTING LOW
2. Tune the set to 98MHz by pressing the TUNING button (+, –) and adjust the output level at 20dB (10µV).
3. Turn RT101 and stop it just when the VTVM reading becomes suddenly 0V.

Signal Indicator Adjustment

Setting:


FM rf signal generator
0.01µV
set
ANTENNA terminal

Modulation: no modulation
Output level: 316µV (50dB)

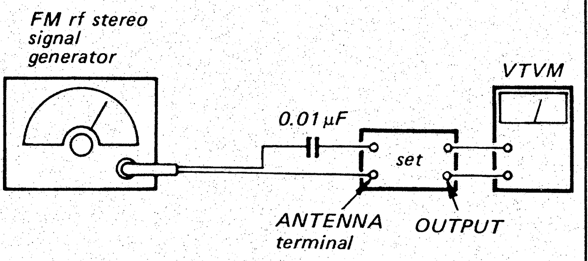
Procedure:

Adjust RT102 so that all LEDs light up.

FM SECTION 2

Stereo Separation Adjustment

Procedure:


FM rf stereo signal generator
VTVM
0.01 μF
set
ANTENNA terminal
OUTPUT

Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Mode: Stereo
Modulation:
Audio (400 Hz): 33.75 kHz deviation (45%)
Pilot (19 kHz): 7.5 kHz deviation (10%)
Subchannel (38 kHz): 33.75 kHz deviation (45%)

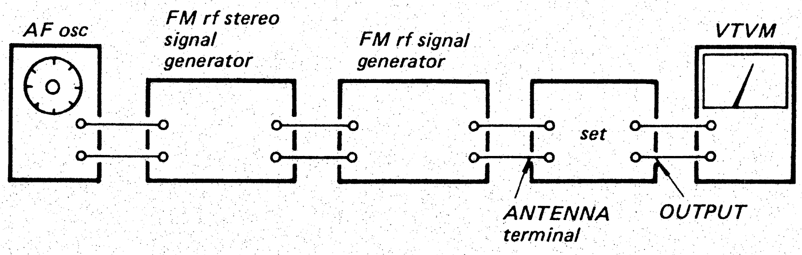
FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT204 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT204 for minimum reading.

L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

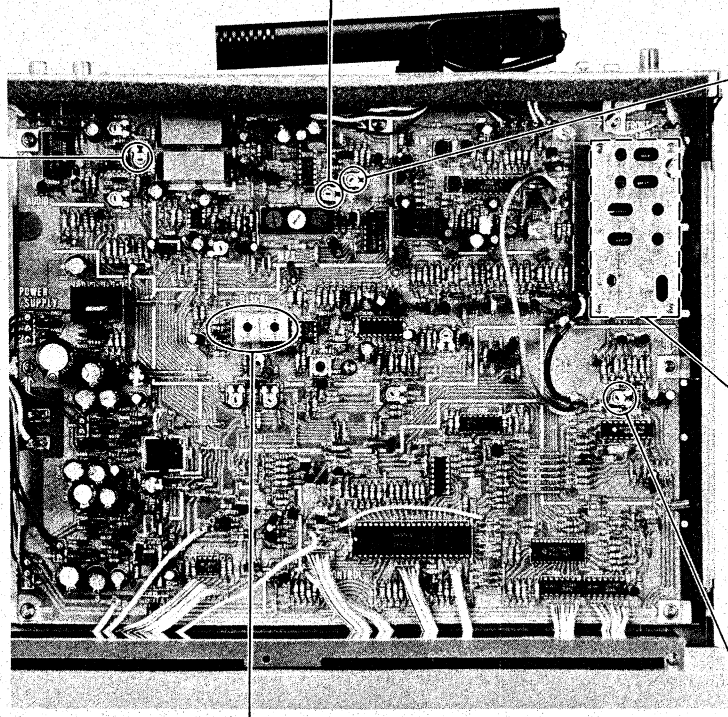
The separations of both channels should be equal.

Pilot Cancel Adjustment

Procedure:


AF osc
FM rf stereo signal generator
FM rf signal generator
set
VTVM
ANTENNA terminal
OUTPUT

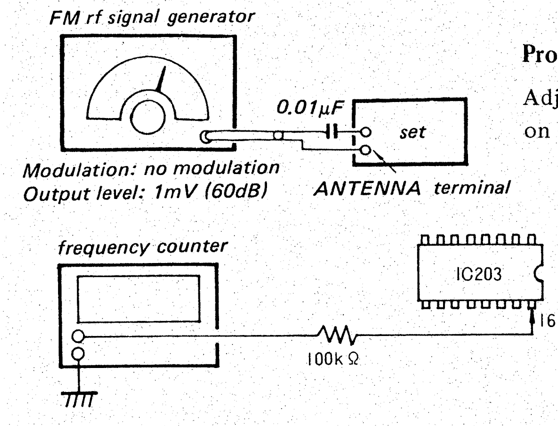
1. Repeat pressing the MUTING button until MUTING LOW indicator lights up.
2. Tune the set to 83MHz by pressing the TUNING switch and turn OFF the audio modulation (400Hz) of the FM stereo signal generator.
3. Adjust RT202 for minimum reading on the VTVM. Output level of both channels should be equal.


RT202
RT203
RT204
IFT102
POWER SUPPLY

No adjustment is needed.

VCO Adjustment

Setting:


FM rf signal generator
0.01μF
set
ANTENNA terminal
frequency counter
IC203
16
100k Ω

Modulation: no modulation
Output level: 1mV (60dB)

Procedure:

Adjust RT203 for 76kHz ±100Hz on the counter.

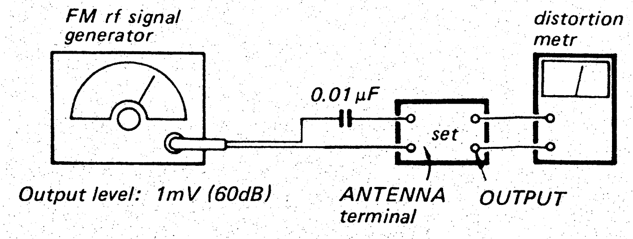
Servicing Precaution

The front-end section has been carefully adjusted at the factory. When it is worn out, be sure to exchange it all with new section, because it is difficult to repair.

Discriminator Alignment

A) Secondary Side

Procedure:


FM rf signal generator
distortion metr
0.01 μF
set
ANTENNA terminal
OUTPUT

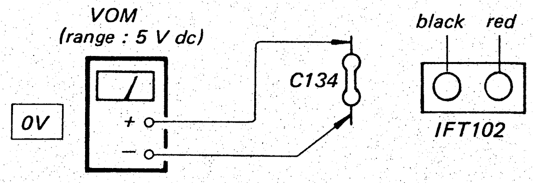
Output level: 1mV (60dB)

Turn the core (secondary side; black) of IFT102 for minimum distortion reading on the distortion meter.

Note: Repeat both secondary and primary sides adjustments several times.

B) Primary Side

Procedure:


VOM (range : 5 V dc)
0V
+
–
C134
black
red
IFT102

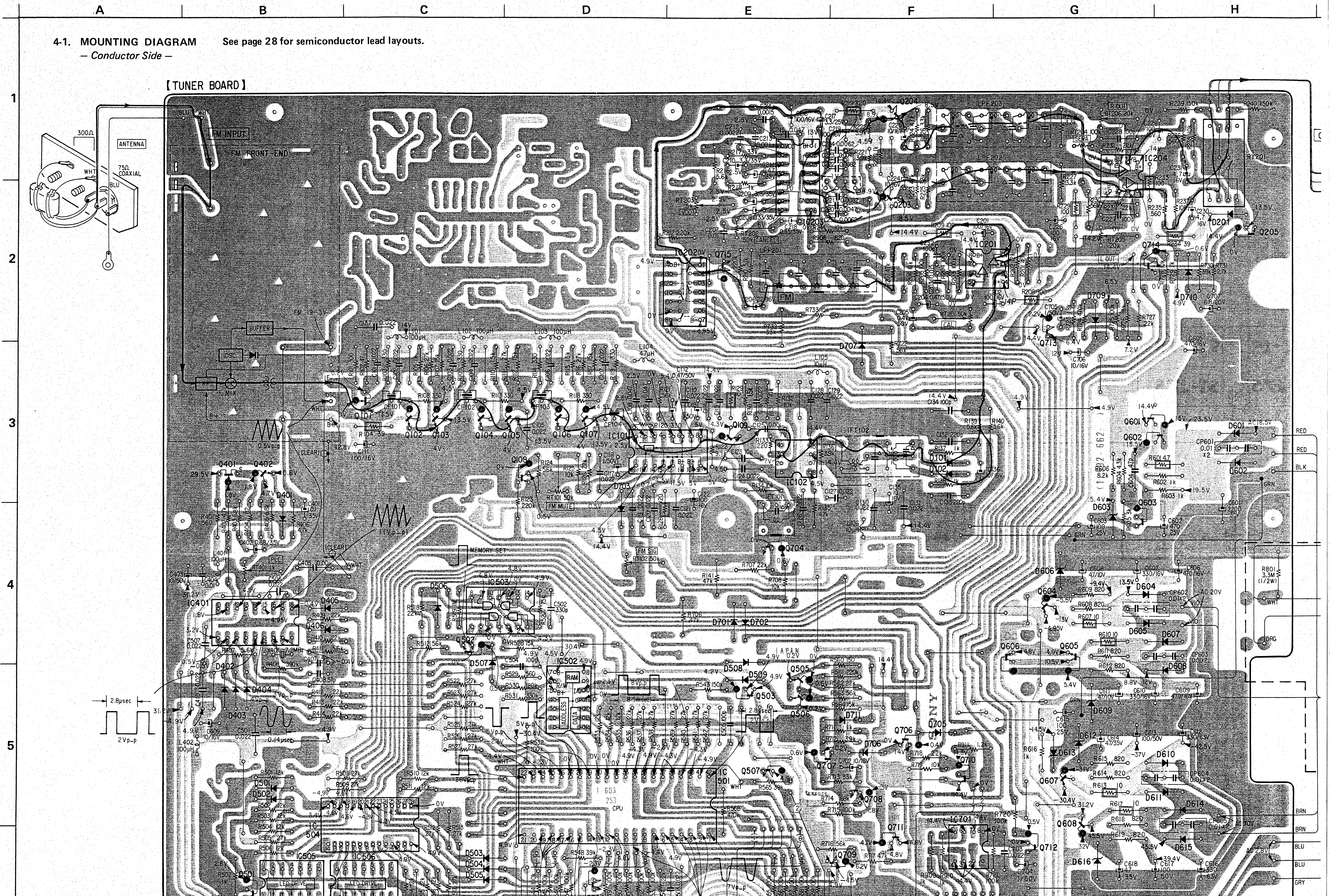
1. Press the TUNING switch to detune the set.
2. Turn the core (primary side: red) of IFT101 for 0V reading on VOM.

Note: When the ceramic filter is replaced, these adjustments should be made.

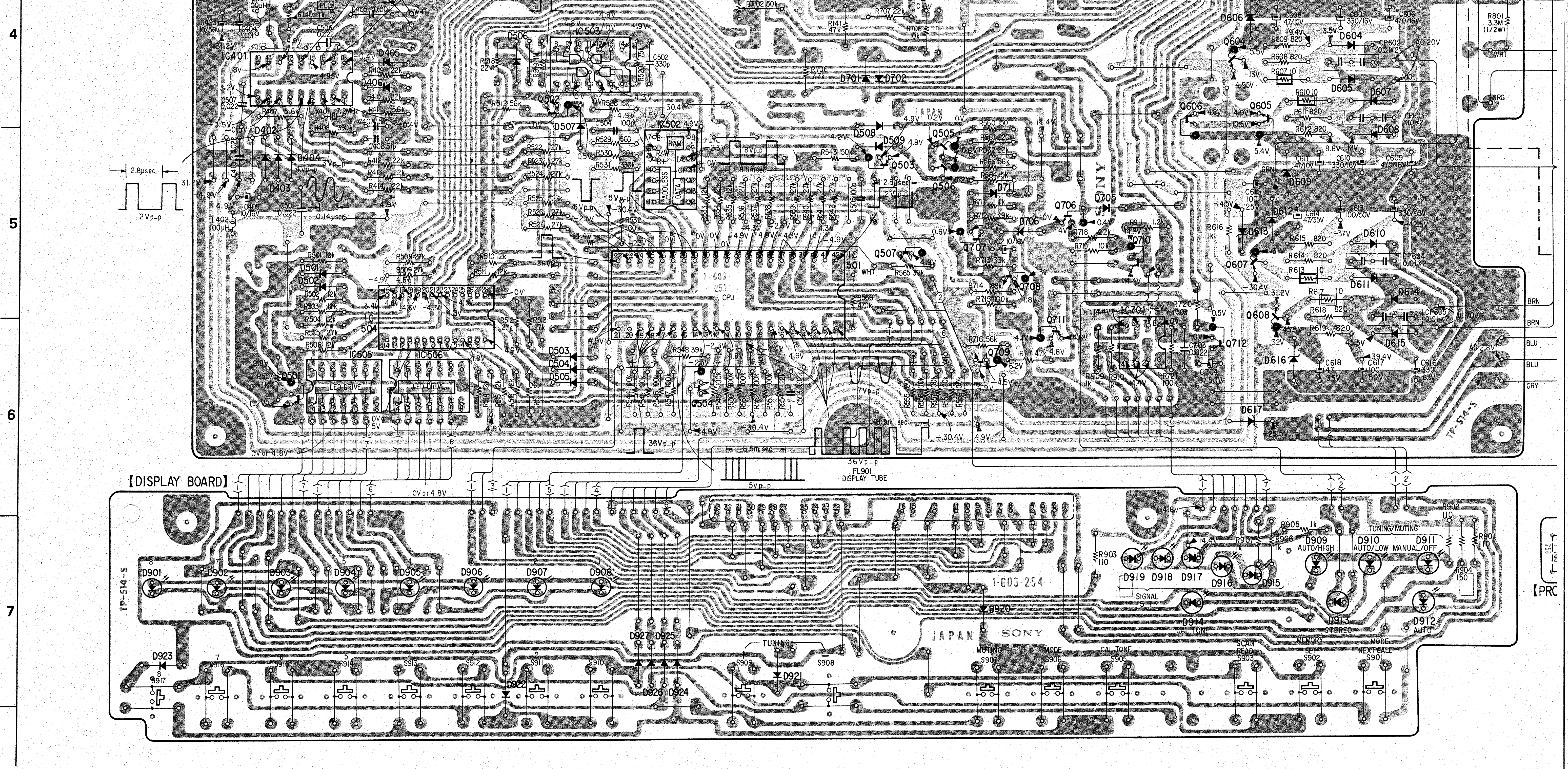
SECTION 4
DIAGRAMS

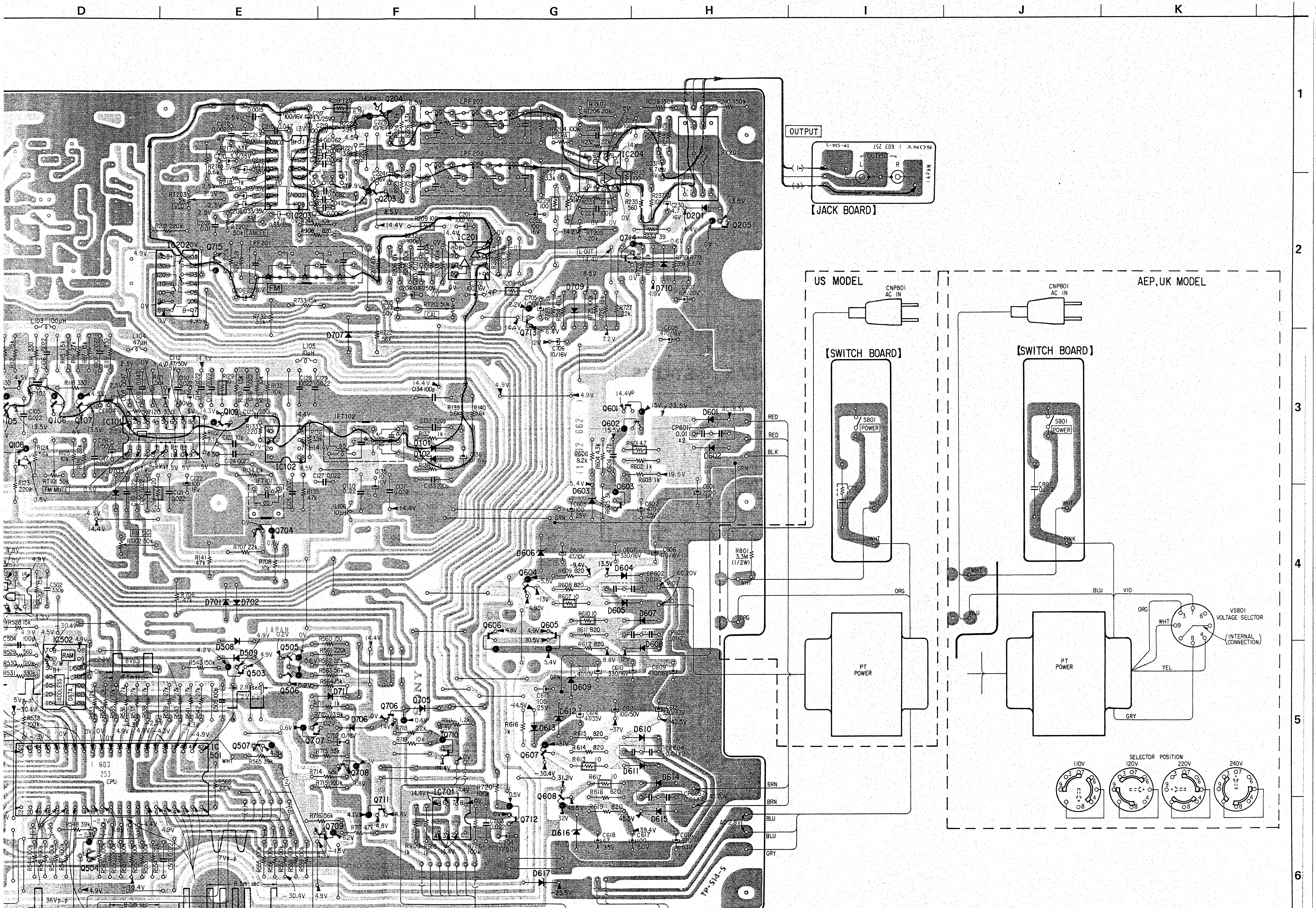
4-1. MOUNTING DIAGRAM
– Conductor Side –

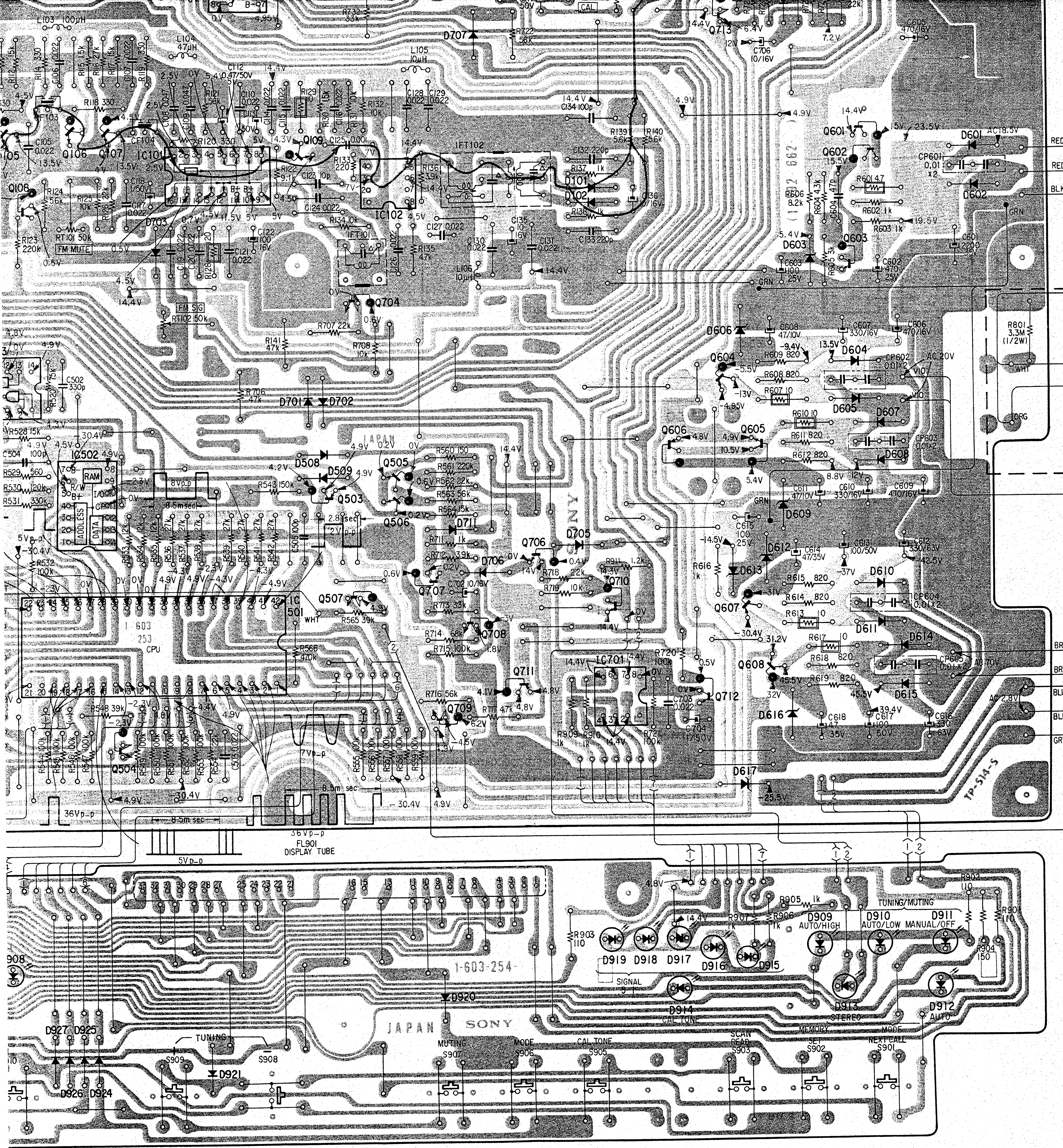
See page 28 for semiconductor lead layouts.

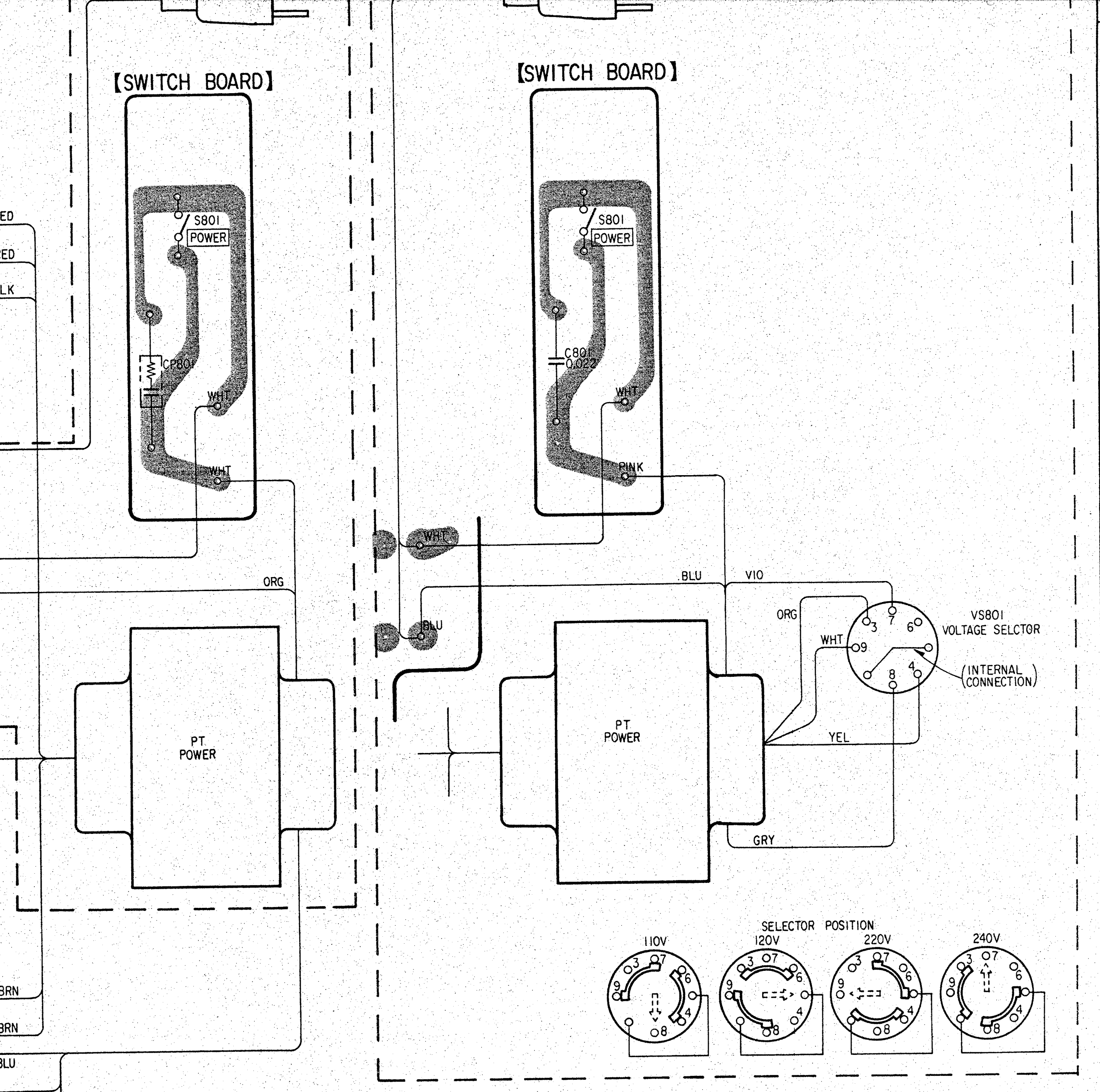


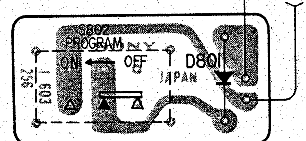
A
B
C
D
E
F
G
H
1
2
3
4
5
【TUNER BOARD】
300Ω
ANTENNA
75Ω COAXIAL
WHT
BLU
FM INPUT
FM FRONT-END
BUFFER
OSC
MIX
RF
FM 19.3V
0.5Vp-p
11Vp-p
(CLEAR)
PLL
MEMORY SET
FM MUTE
FM SIG
CANCEL
FM
CAL
L OUT
R OUT
SEPA
LPF 201
LPF 202
LPF 203
IC101
IC201
IC202
IC203
IC204
IC401
IC501
IC502
IC503
IC504
IC505
IC506
IC701
IFT101
IFT102
CF101
CF102
CF103
CF104
RY201
RAM
ADDRESS
DATA
CPU
LED DRIVE
SONY
2.8μsec
2Vp-p
0.14μsec
8Vp-p
8.5msec
7Vp-p
R801 3.3M (1/2W)
RED
BLK
GRN
WHT
ORG
BRN
BLU
GRY


4
5
6
7
【DISPLAY BOARD】
IC401
IC501 CPU
IC502
RAM
ADDLESS
DATA
IC503
IC504
IC505 LED DRIVE
IC506 LED DRIVE
IC701
FL901 DISPLAY TUBE
2.8μsec
2Vp-p
0.14μsec
36Vp-p
8.5msec
5Vp-p
7Vp-p
0V or 4.8V
TP-514-S
1-603-254
JAPAN
SONY
TUNING/MUTING
D909 AUTO/HIGH
D910 AUTO/LOW
D911 MANUAL/OFF
SIGNAL
D914 CAL TONE
D913 STEREO
D912 AUTO
TUNING
MUTING S907
MODE S906
CAL-TONE S905
SCAN READ S903
MEMORY SET S902
MODE NEXT CALL S901
S908
S909
S910
S911
S912
S913
S914
S915
S916
S917
BRN
BLU
GRY
WHT
ORG
GRN
AC 20V
AC 70V
R801 3.3M (1/2W)
【PRO


D
E
F
G
H
I
J
K
1
2
3
4
5
6
OUTPUT
【JACK BOARD】
SONY 1 603 257
TP-514-S
OUTPUT
L
R
JAPAN
(1)
(3)
RY201
IC201
IC202
IC203
IC204
IC101
IC102
IC701
IC502
LPF201
LPF202
LPF203
IFT101
IFT102
FM MUTE
FM SIG
CAL
CANCEL
VCO
SERA
R OUT
L OUT
US MODEL
AEP,UK MODEL
CNP801
AC IN
【SWITCH BOARD】
S801
POWER
CP801
WHT
PINK
R801 3.3M (1/2W)
RED
BLK
GRN
ORG
BRN
BLU
GRY
VIO
YEL
PT
POWER
VS801
VOLTAGE SELCTOR
(INTERNAL CONNECTION)
SELECTOR POSITION
110V
120V
220V
240V
CPU
1 603 253
ADDLESS
DATA
RAM
TP-514-S


IC101
IC102
IC502
IC501
CPU
IC701
1-603-253
1-603-254
FL901
DISPLAY TUBE
IFT101
IFT102
FM MUTE
FM SIG
TP-514-5
JAPAN
SONY
TUNING
MUTING S907
MODE S906
CAL TONE S905
SCAN READ S903
MEMORY SET S902
MODE NEXT CALL S901
S908
S909
D909 AUTO/HIGH
D910 AUTO/LOW
D911 MANUAL/OFF
TUNING/MUTING
D912 AUTO
D913 STEREO
D914 CAL TONE
SIGNAL
RED
BLK
GRN
WHT
ORG
BRN
BLU
GRY
36Vp-p
8.5msec
5Vp-p
7Vp-p

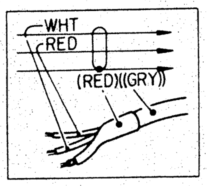

【SWITCH BOARD】
S801 POWER
C801 0.022
R801 3.3M (1/2W)
【SWITCH BOARD】
S801 POWER
C801 0.022
WHT
PINK
BLU
VIO
ORG
YEL
GRY
PT POWER
PT POWER
VS801 VOLTAGE SELCTOR
(INTERNAL CONNECTION)
SELECTOR POSITION
110V
120V
220V
240V
3
4
5
6


S802 PROGRAM
ON
OFF
D801
1-603-256
JAPAN

【PROGRAM SWITCH BOARD】

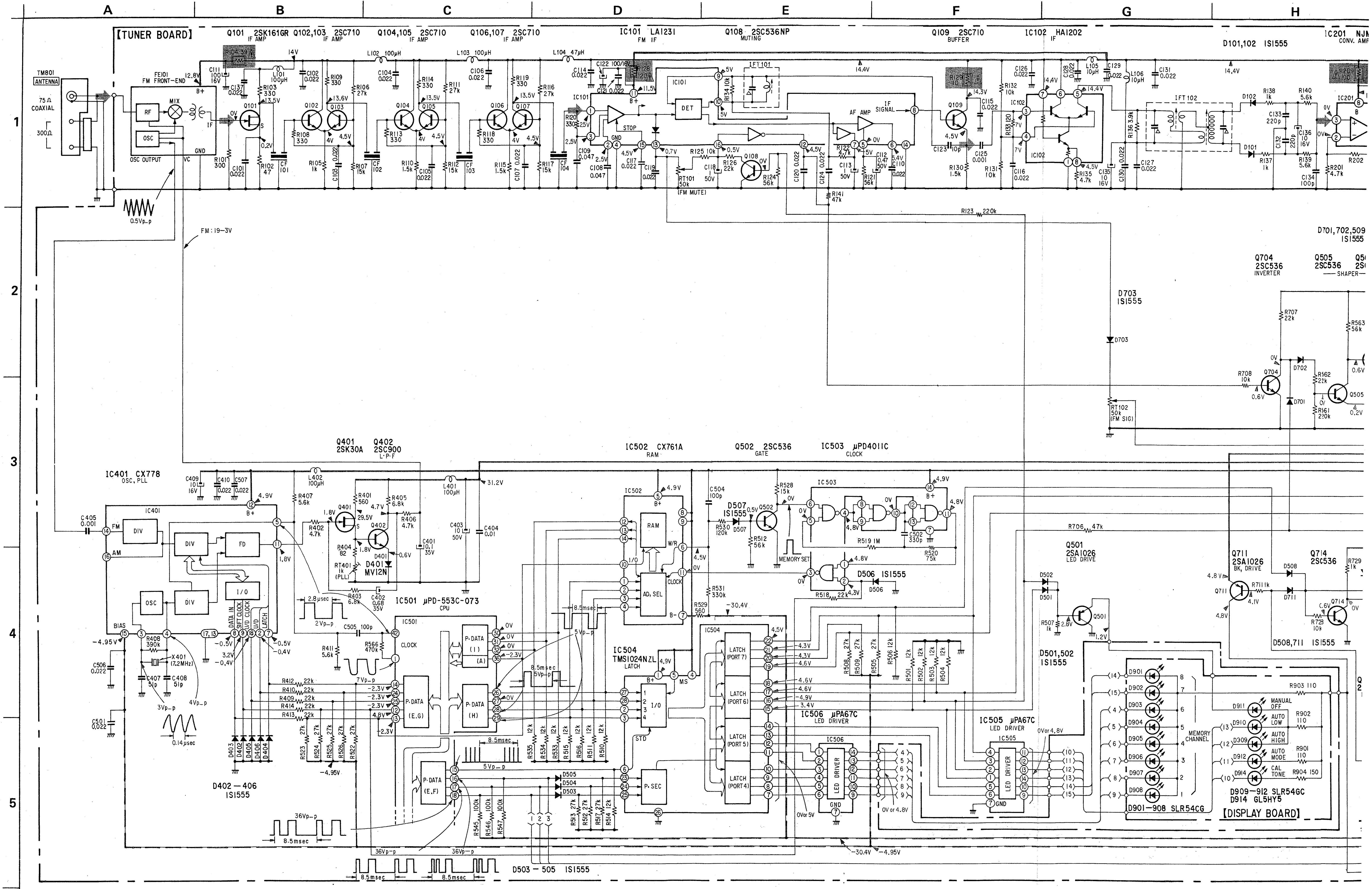
Note:

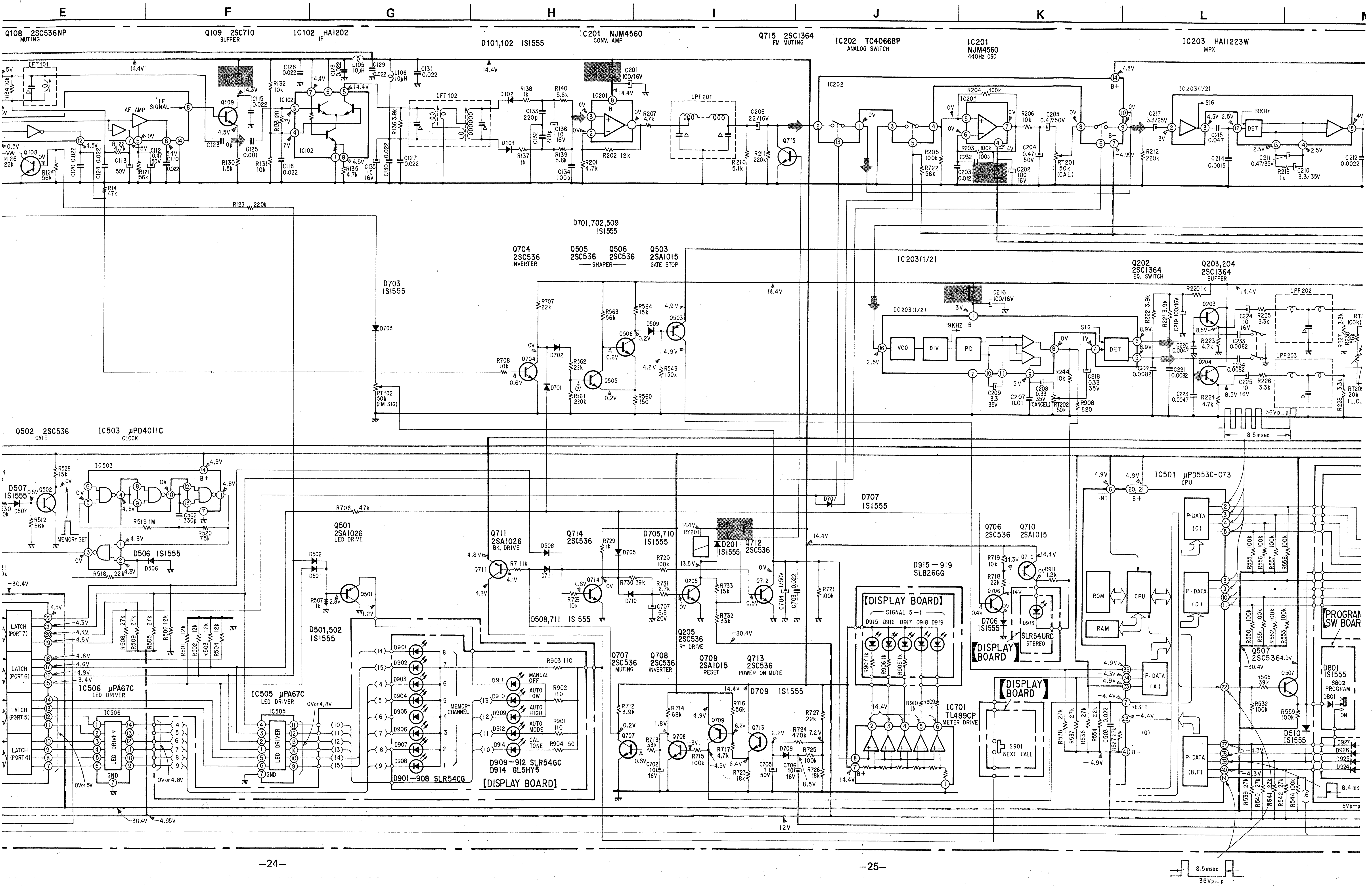
- Color code of sleeving over the end of the jacket.

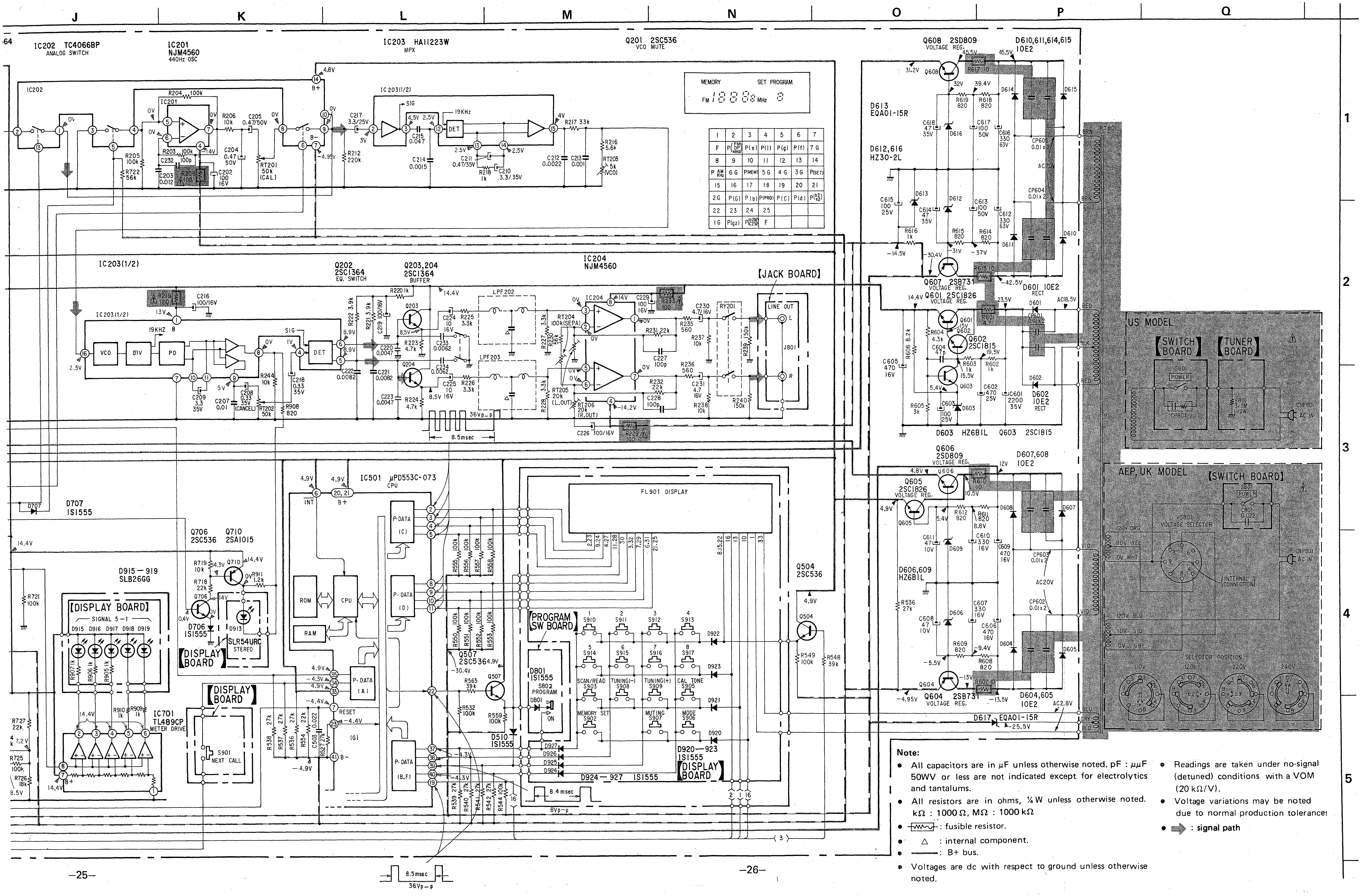

WHT
RED
(RED)(GRY)

- [ ]← : indicates side identified with part number.
- Ⓕ : fusible resistor.
- ▒ : B+ pattern
- ▓ : B- pattern
- —→— : signal path
- —·→ : L-CH signal path
- —··→ : R-CH signal path

4-2. SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
5
【TUNER BOARD】
Q101 2SK161GR IF AMP
Q102,103 2SC710 IF AMP
Q104,105 2SC710 IF AMP
Q106,107 2SC710 IF AMP
IC101 LA1231 FM IF
Q108 2SC536NP MUTING
Q109 2SC710 BUFFER
IC102 HA1202 IF
IC201 NJM CONV. AMP
D101,102 1S1555
TM801 ANTENNA
75Ω COAXIAL
300Ω
FE101 FM FRONT-END
RF
MIX
OSC
OSC OUTPUT
IF
GND
VC
B+
0.5Vp-p
FM:19-3V
DET
AF AMP
IF SIGNAL
STOP
IFT101
IFT102
RT101 50k (FM MUTE)
R123 220k
D701,702,509 1S1555
Q704 2SC536 INVERTER
Q505 2SC536 SHAPER
D703 1S1555
RT102 50k (FM SIG)
Q401 2SK30A
Q402 2SC900 L·P·F
IC401 CX778 OSC, PLL
DIV
FD
I/O
BIAS
X401 (7.2MHz)
D401 MV12N
RT401 1k (PLL)
IC501 µPD-553C-073 CPU
CLOCK
P-DATA (I) (A)
P-DATA (H)
P-DATA (E,G)
P-DATA (E,F)
IC502 CX761A RAM
Q502 2SC536 GATE
IC503 µPD4011C CLOCK
D507 1S1555
MEMORY SET
D506 1S1555
AD, SEL
IC504 TMS1024NZL LATCH
LATCH (PORT 7)
LATCH (PORT 6)
LATCH (PORT 5)
LATCH (PORT 4)
STD
P-SEC
IC506 µPA67C LED DRIVER
LED DRIVER
IC505 µPA67C LED DRIVER
Q501 2SA1026 LED DRIVE
D501,502 1S1555
Q711 2SA1026 BK, DRIVE
Q714 2SC536
D508,711 1S1555
D402-406 1S1555
D503-505 1S1555
D901-908 SLR54CG
D909-912 SLR54GC
D914 GL5HY5
MANUAL OFF
AUTO LOW
AUTO HIGH
AUTO MODE
CAL TONE
MEMORY CHANNEL
【DISPLAY BOARD】
31.2V
-30.4V
-4.95V
8.5msec
36Vp-p
5Vp-p
2.8µsec
0.14µsec


E
F
G
H
I
J
K
L
Q108 2SC536NP MUTING
Q109 2SC710 BUFFER
IC102 HA1202 IF
D101,102 1S1555
IC201 NJM4560 CONV. AMP
Q715 2SC1364 FM MUTING
IC202 TC4066BP ANALOG SWITCH
IC201 NJM4560 440Hz OSC
IC203 HA11223W MPX
IFT101
IFT102
AF AMP
IF SIGNAL
LPF201
IC203(1/2)
19KHz
DET
R204 100k
RT201 50k (CAL)
D701,702,509 1S1555
Q704 2SC536 INVERTER
Q505 2SC536
Q506 2SC536
SHAPER
Q503 2SA1015 GATE STOP
D703 1S1555
RT102 50k (FM SIG)
IC203(1/2)
VCO
DIV
PD
DET
19KHZ
SIG
Q202 2SC1364 EQ. SWITCH
Q203,204 2SC1364 BUFFER
LPF202
LPF203
RT202 50k (CANCEL)
8.5msec
36Vp-p
Q502 2SC536 GATE
IC503 μPD4011C CLOCK
D507 1S1555
MEMORY SET
D506 1S1555
Q501 2SA1026 LED DRIVE
D501,502 1S1555
Q711 2SA1026 BK, DRIVE
Q714 2SC536
D705,710 1S1555
D508,711 1S1555
Q712 2SC536
RY201
D201 1S1555
Q205 2SC536 RY DRIVE
D707 1S1555
D915 - 919 SLB26GG
[DISPLAY BOARD]
SIGNAL 5 - 1
Q706 2SC536
Q710 2SA1015
D706 1S1555
SLR54URC STEREO
[DISPLAY BOARD]
IC501 μPD553C-073 CPU
ROM
CPU
RAM
P-DATA (C)
P-DATA (D)
P-DATA (A)
P-DATA (B,F)
RESET
INT
B+
(G)
LATCH (PORT 7)
LATCH (PORT 6)
LATCH (PORT 5)
LATCH (PORT 4)
IC506 μPA67C LED DRIVER
LED DRIVER
GND
IC505 μPA67C LED DRIVER
D901-908 SLR54CG
MEMORY CHANNEL
MANUAL OFF
AUTO LOW
AUTO HIGH
AUTO MODE
CAL TONE
D909-912 SLR54GC
D914 GL5HY5
[DISPLAY BOARD]
Q707 2SC536 MUTING
Q708 2SC536 INVERTER
Q709 2SA1015 RESET
Q713 2SC536 POWER ON MUTE
D709 1S1555
IC701 TL489CP METER DRIVE
[DISPLAY BOARD]
S901 NEXT CALL
Q507 2SC536
D801 1S1555
S802 PROGRAM ON
D510 1S1555
[PROGRAM SW BOARD]
8.5msec
36Vp-p
14.4V
-30.4V
-4.95V
12V


J
K
L
M
N
O
P
Q
IC202 TC4066BP ANALOG SWITCH
IC201 NJM4560 440Hz OSC
IC203 HA11223W MPX
Q201 2SC536 VCO MUTE
Q608 2SD809 VOLTAGE REG.
D610,611,614,615 10E2
MEMORY SET PROGRAM
D613 EQA01-15R
D612,616 HZ30-2L
IC203(1/2)
Q202 2SC1364 EQ. SWITCH
Q203,204 2SC1364 BUFFER
IC204 NJM4560
【JACK BOARD】
LINE OUT
J801
Q607 2SB731 VOLTAGE REG.
Q601 2SC1826 VOLTAGE REG.
Q602 2SC1815
D601 10E2 RECT
D602 10E2 RECT
D603 HZ6B1L
Q603 2SC1815
US MODEL
【SWITCH BOARD】
【TUNER BOARD】
S801 POWER
CNP801 AC IN
VCO
DIV
PD
DET
LPF202
LPF203
RY201
8.5msec
36Vp-p
Q606 2SD809 VOLTAGE REG.
D607,608 10E2
Q605 2SC1826 VOLTAGE REG.
D606,609 HZ6B1L
AEP, UK MODEL
VS801 VOLTAGE SELECTOR
INTERNAL CONNECTION
SELECTOR POSITION
110V
120V
220V
240V
Q604 2SB731 VOLTAGE REG.
D604,605 10E2
D617 EQA01-15R
IC501 μPD553C-073 CPU
FL901 DISPLAY
ROM
CPU
RAM
P-DATA (C)
P-DATA (D)
P-DATA (A)
P-DATA (B,F)
RESET
D707 1S1555
Q706 2SC536
Q710 2SA1015
D915-919 SLB26GG
【DISPLAY BOARD】
SIGNAL 5-1
D706 1S1555
D913 SLR54URC STEREO
IC701 TL489CP METER DRIVE
S901 NEXT CALL
Q507 2SC536
D510 1S1555
【PROGRAM SW BOARD】
D801 1S1555
S802 PROGRAM
ON
SCAN/READ S903
TUNING(-) S908
TUNING(+) S909
CAL TONE S905
MEMORY S902
SET
MUTING S907
MODE S906
D924-927 1S1555
D920-923 1S1555
Q504 2SC536
8.4msec
8Vp-p
1
2
3
4
5

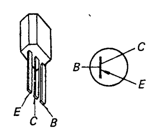
Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ⊣⁄⁄⊢ : fusible resistor.
- △ : internal component.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20 kΩ/V).
- Voltage variations may be noted due to normal production tolerances
- ➡ : **signal path**

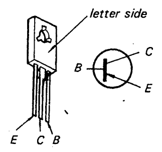
SECTION 5
EXPLODED VIEWS

• Semiconductor Lead Layouts

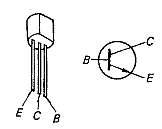
2SA1027R



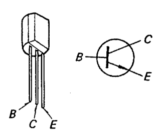
2SB731


letter side
B
C
E
E C B

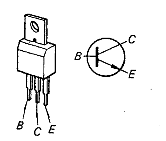
2SC536SP
2SC1362
2SC1364



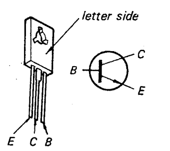
2SC710



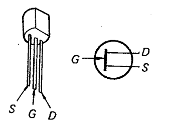
2SC1986



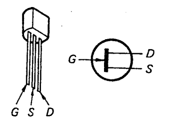
2SD809


letter side
B
C
E
E C B

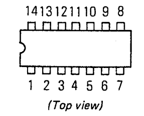
2SK30A-GR3



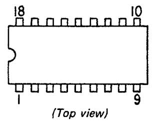
2SK161



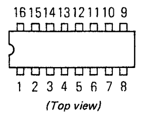
CX761A
NPA67C
TC4066BP
µPD4011C


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

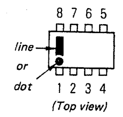
CX778


18
10
1
9
(Top view)

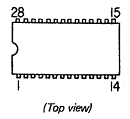
HA1202
HA11223W
LA1231


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

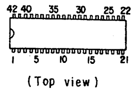
NJM4560D
TL489CP


8 7 6 5
line
or
dot
1 2 3 4
(Top view)

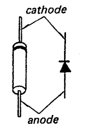
TMS1024N2L


28
15
1
14
(Top view)

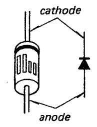
µPD553C-073


42 40 35 30 25 22
1 5 10 15 21
(Top view)

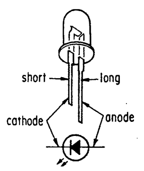
EQB61-30
HZ30-2L
1S1555
10E2


cathode
anode

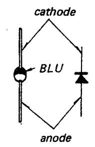
EQB01-06
EQB01-15
HZ6B1L


cathode
anode

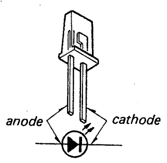
GL5HY5
SLR54GC
SLR54GG
SLR54URC


short
long
cathode
anode

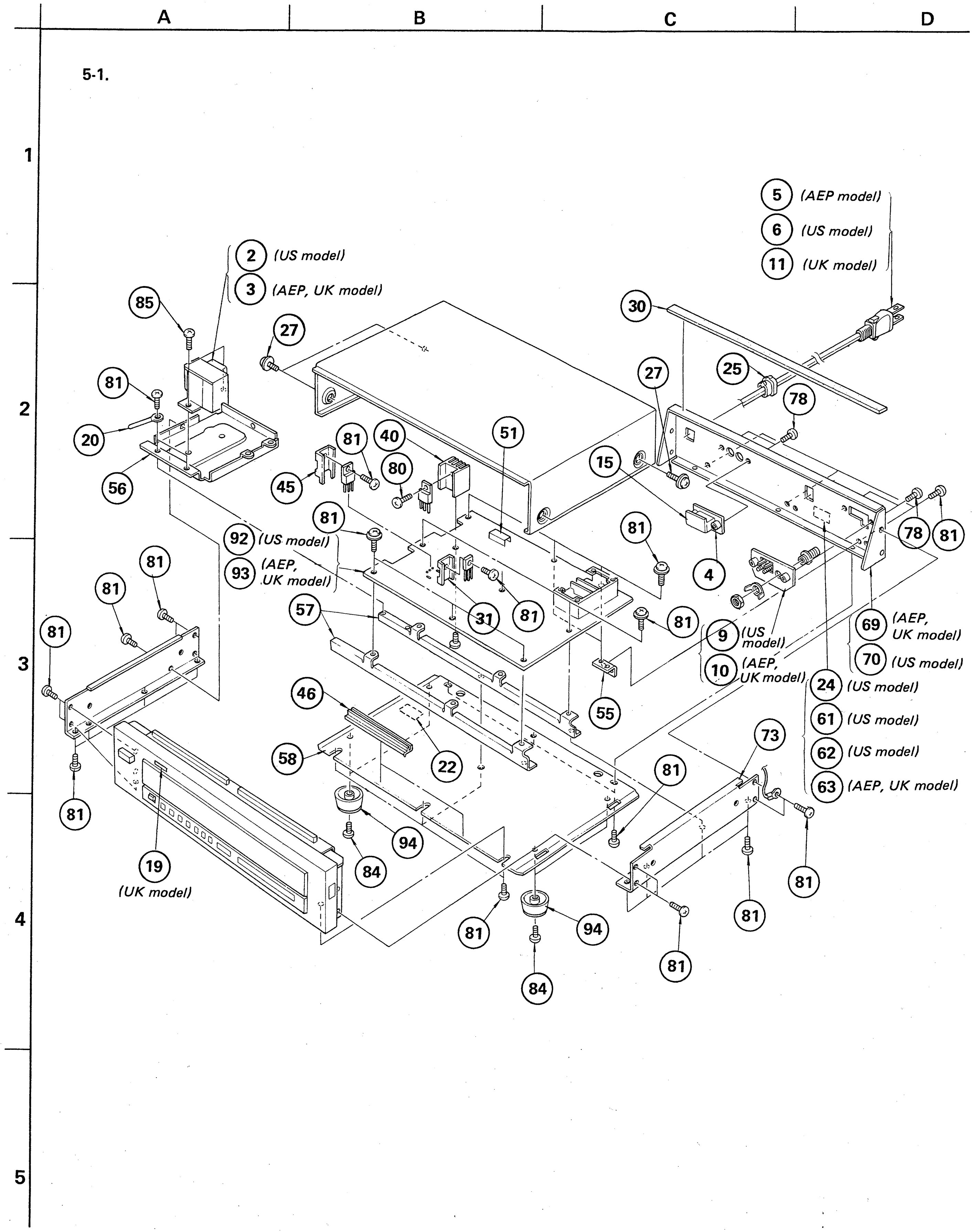
MV12N


cathode
BLU
anode

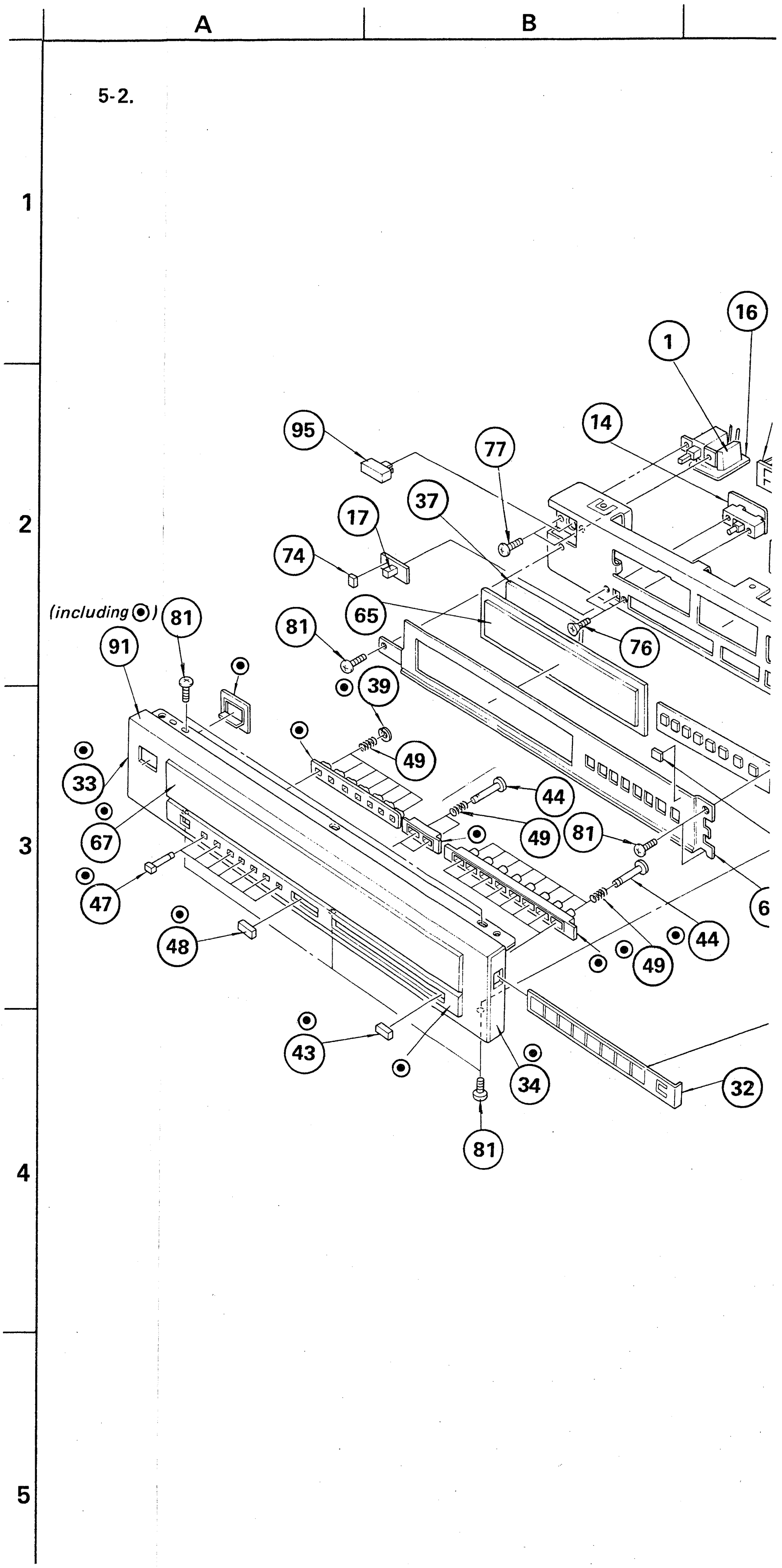
SLP241B

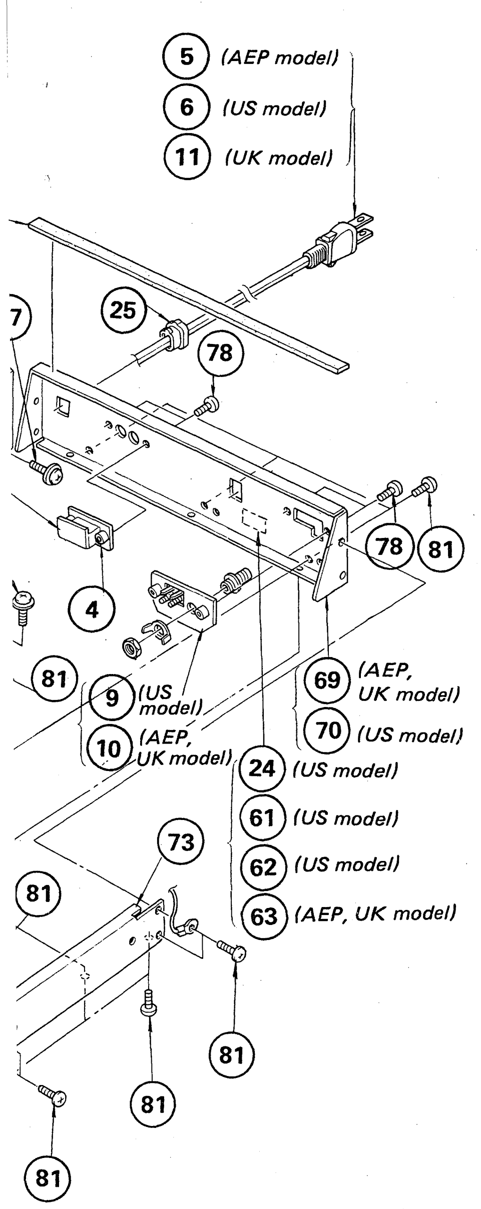

anode
cathode

5-1.

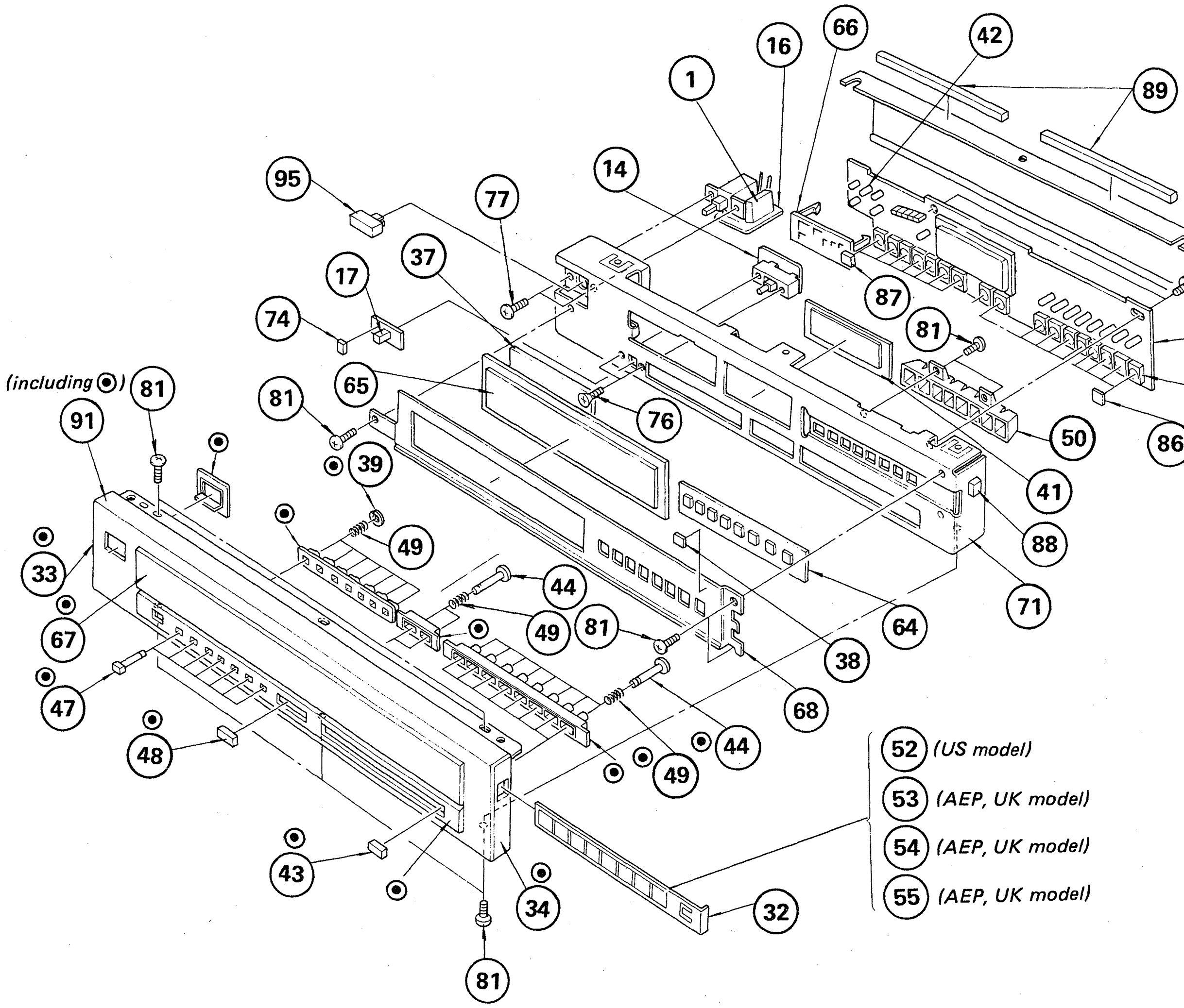

A
B
C
D
1
2
3
4
5
5 (AEP model)
6 (US model)
11 (UK model)
2 (US model)
3 (AEP, UK model)
85
27
30
25
27
78
81
20
56
45
81
40
80
51
15
81
4
78
81
92 (US model)
93 (AEP, UK model)
81
81
81
57
31
81
81
3
9 (US model)
10 (AEP, UK model)
69 (AEP, UK model)
70 (US model)
24 (US model)
61 (US model)
62 (US model)
63 (AEP, UK model)
46
55
58
22
73
81
81
19 (UK model)
94
84
81
81
94
84
81
81
81

5-2.


A
B
1
2
3
4
5
16
1
14
95
77
37
17
74
81
65
76
(including ◉)
81
91
39
49
33
67
44
49
81
47
48
44
49
43
34
32
81
6



5-2.



GENERAL SECTION

No.	Part No.	Description
1	⚠ 1-231-326-11	ENCAPSULATED COMPONENT..CP801***(USA)
2	⚠ 1-446-904-00	TRANSFORMER, POWER*****(USA)
3	⚠ 1-446-905-00	TRANSFORMER, POWER*****(AEP,UK)
4	1-507-699-00	JACK, PIN 2P
5	⚠ 1-534-817-99	CORD, POWER*****(AEP)
6	⚠ 1-534-986-XX	CORD, POWER*****(USA)
7	************	
8	************	
9	1-536-652-00	TERMINAL BOARD (ANT)***(AEP,UK)
10	1-536-653-00	TERMINAL BOARD (ANT)***(USA)
11	⚠ 1-551-884-00	CORD, POWER*****(UK)
12	●:1-560-062-00	PIN, CONNECTOR 4P
13	●:1-603-254-00	PC BOARD, DISPLAY
14	●:1-603-256-00	PC BOARD, SWITCH (B)
15	●:1-603-257-00	PC BOARD, PIN JACK
16	●:1-603-910-00	PC BOARD, POWER SWITCH
17	3-558-428-21	KNOB, SLIDE
18	************	
19	3-701-690-01	LABEL (MADE IN JAPAN)***(UK)
20	3-701-822-00	HOLDER, WIRE
21	3-703-043-21	LABEL, MAIN-CAUTION*****(UK)
22	************	
23	3-703-079-21	LABEL, SUB-CAUTION******(USA)
24	3-703-208-11	LABEL, IDENTIFICATION***(USA)
25	3-703-244-00	BUSHING, CORD
26	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
27	3-703-354-11	SCREW (OS), CASE, CLAW
28	************	
29	3-831-441-XX	CUSHION (A)
30	4-848-642-00	CUSHION, VIBRATION
31	●:4-861-002-00	HEAT SINK
32	4-861-701-00	HOLDER, DIAL SCALE
33	4-861-708-11	PLATE, SIDE
34	4-861-709-11	PLATE (A), SIDE
35	4-861-735-00	ILLUMINATOR**********(AEP,UK)
36	************	
37	4-861-765-00	ILLUMINATOR,(S)******(USA)
38	4-862-326-00	EMBLEM, QUARTZ
39	4-862-338-00	RING, STOPPER
40	●:4-863-132-00	HEAT SINK (SMALL)
41	4-866-357-00	WINDOW, DIGITAL
42	4-866-397-00	CUSHION, LED
43	4-866-603-11	KNOB, PUSH
44	4-866-604-00	JOINT, PUSH KNOB
45	●:4-866-647-00	HEAT SINK

GENERAL SECTION

No.	Part No.	Description
46	●:4-866-702-00	RETAINER (A), PC
47	4-866-705-11	KNOB (C)
48	4-866-706-11	KNOB (B)
49	4-866-707-00	SPRING, COMPRESS
50	●:4-866-711-00	HOLDER, LED
51	●:4-866-725-00	PLATE (A), SHIEL
52	4-866-728-00	INDICATOR, STATI
53	4-866-738-00	INDICATOR, STATI
54	4-866-739-00	INDICATOR, STATI
55	●:4-866-740-00	BRACKET, CHASSIS
56	●:4-866-741-00	BASE, TRANSFORME
57	●:4-866-745-00	CHANNEL (A)
58	●:4-866-746-00	PLATE, BOTTOM
59	●:4-866-747-00	COVER, SHIELD
60	4-866-748-00	INDICATOR, STATI
61	4-871-302-00	LABEL, MODEL NUM
62	4-871-302-00	LABEL, SPECIFICA
63	4-871-303-00	LABEL, SPECIFICA
64	●:4-871-305-00	WINDOW, INDICATI
65	4-871-308-00	PANEL, INDICATIO
66	4-871-309-00	HOLDER (A), LED
67	4-871-313-00	WINDOW, LARGE
68	4-871-315-00	BRACKET, INDICAT
69	4-871-318-00	PLATE, JACK*****
70	4-871-319-00	PLATE, JACK*****
71	●:4-871-320-00	CHASSIS, SUB
72	4-871-321-00	LABEL, SPECIFICA
73	●:4-871-326-00	PLATE, SIDE
74	●:4-871-328-00	PLATE, INDICATIO
75	4-893-632-11	CASE
76	7-621-775-10	SCREW +B 2.6X4
77	7-682-647-01	SCREW +PS 3X6
78	7-685-647-29	SCREW +BVTP 3
79	************	
80	7-685-871-01	SCREW +BVTT 3X
81	7-685-871-01	SCREW +BVTT 3X
82	************	
83	************	
84	7-685-872-01	SCREW +BVTT 3X
85	7-685-880-09	SCREW +BVTT 4X
86	9-911-839-XX	RUBBER (A)
87	9-911-840-XX	RUBBER (B)
88	9-911-841-XX	SPACER
89	9-911-845-XX	CUSHION
90	************	

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ● " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The compo
by shadin
critical
Replace o
number sp

COILS
- MMH : mH, U

GENERAL SECTION

No.	Part No.	Description
1	⚠ 1-231-326-11	ENCAPSULATED COMPONENT..CP801***(USA)
2	⚠ 1-446-904-00	TRANSFORMER, POWER*****(USA)
3	⚠ 1-446-905-00	TRANSFORMER, POWER*****(AEP,UK)
4	1-507-699-00	JACK, PIN 2P
5	⚠ 1-534-817-99	CORD, POWER*****(AEP)
6	⚠ 1-534-986-XX	CORD, POWER*****(USA)
7	************	
8	************	
9	1-536-652-00	TERMINAL BOARD (ANT)***(AEP,UK)
10	1-536-653-00	TERMINAL BOARD (ANT)***(USA)
11	⚠ 1-551-884-00	CORD, POWER*****(UK)
12	♠:1-560-062-00	PIN, CONNECTOR 4P
13	♠:1-603-254-00	PC BOARD, DISPLAY
14	♠:1-603-256-00	PC BOARD, SWITCH (B)
15	♠:1-603-257-00	PC BOARD, PIN JACK
16	♠:1-603-910-00	PC BOARD, POWER SWITCH
17	3-558-428-21	KNOB, SLIDE
18	************	
19	3-701-690-01	LABEL (MADE IN JAPAN)***(UK)
20	3-701-822-00	HOLDER, WIRE
21	3-703-043-21	LABEL, MAIN-CAUTION*****(UK)
22	************	
23	3-703-079-21	LABEL, SUB-CAUTION******(USA)
24	3-703-208-11	LABEL, IDENTIFICATION***(USA)
25	3-703-244-00	BUSHING, CORD
26	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
27	3-703-354-11	SCREW (OS), CASE, CLAW
28	************	
29	3-831-441-XX	CUSHION (A)
30	4-848-642-00	CUSHION, VIBRATION
31	♠:4-861-002-00	HEAT SINK
32	4-861-701-00	HOLDER, DIAL SCALE
33	4-861-708-11	PLATE, SIDE
34	4-861-709-11	PLATE (A), SIDE
35	4-861-735-00	ILLUMINATOR**********(AEP,UK)
36	************	
37	4-861-765-00	ILLUMINATOR,(S)******(USA)
38	4-862-326-00	EMBLEM, QUARTZ
39	4-862-338-00	RING, STOPPER
40	♠:4-863-132-00	HEAT SINK (SMALL)
41	4-866-357-00	WINDOW, DIGITAL
42	4-866-397-00	CUSHION, LED
43	4-866-603-11	KNOB, PUSH
44	4-866-604-00	JOINT, PUSH KNOB
45	♠:4-866-647-00	HEAT SINK
46	♠:4-866-702-00	RETAINER (A), PC BOARD
47	4-866-705-11	KNOB (C)
48	4-866-706-11	KNOB (B)
49	4-866-707-00	SPRING, COMPRESSION
50	♠:4-866-711-00	HOLDER, LED
51	♠:4-866-725-00	PLATE (A), SHIELD
52	4-866-728-00	INDICATOR, STATION (F-1)
53	4-866-738-00	INDICATOR, STATION(E-1)**(AEP,UK)
54	4-866-739-00	INDICATOR, STATION(E-2)**(AEP,UK)
55	♠:4-866-740-00	BRACKET, CHASSIS
56	♠:4-866-741-00	BASE, TRANSFORMER
57	♠:4-866-745-00	CHANNEL (A)
58	♠:4-866-746-00	PLATE, BOTTOM
59	♠:4-866-747-00	COVER, SHIELD
60	4-866-748-00	INDICATOR, STATION(E)****(AEP,UK)
61	4-871-302-00	LABEL, MODEL NUMBER****(USA)
62	4-871-302-00	LABEL, SPECIFICATION*****(USA)
63	4-871-303-00	LABEL, SPECIFICATION*****(UK)
64	♠:4-871-305-00	WINDOW, INDICATION
65	4-871-308-00	PANEL, INDICATION
66	4-871-309-00	HOLDER (A), LED
67	4-871-313-00	WINDOW, LARGE
68	4-871-315-00	BRACKET, INDICATION PANEL
69	4-871-318-00	PLATE, JACK**************(AEP,UK)
70	4-871-319-00	PLATE, JACK*****(USA)
71	♠:4-871-320-00	CHASSIS, SUB
72	4-871-321-00	LABEL, SPECIFICATION*****(AEP)
73	♠:4-871-326-00	PLATE, SIDE
74	♠:4-871-328-00	PLATE, INDICATION, PROGRAM
75	4-893-632-11	CASE
76	7-621-775-10	SCREW +B 2.6X4
77	7-682-647-01	SCREW +PS 3X6
78	7-685-647-29	SCREW +BVTP 3X10 TYPE2 SLIT
79	************	
80	7-685-871-01	SCREW +BVTT 3X6 (S)
81	7-685-871-01	SCREW +BVTT 3X6 (S)
82	************	
83	************	
84	7-685-872-01	SCREW +BVTT 3X8 (S)
85	7-685-880-09	SCREW +BVTT 4X6 (S)
86	9-911-839-XX	RUBBER (A)
87	9-911-840-XX	RUBBER (B)
88	9-911-841-XX	SPACER
89	9-911-845-XX	CUSHION
90	************	

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COILS
- MMH : mH, UH : µH

GENERAL SECTION

No.	Part No.	Description
91	A-4322-299-A	PANEL ASSY
92	♠:A-4351-219-A	MOUNTED PCB, TUNER*****(USA)
93	♠:A-4351-220-A	MOUNTED PCB, TUNER*****(AEP,UK)
94	X-4861-312-0	FOOT ASSY, MF
95	A-4447-064-A	KNOB ASSY, POWER

ACCESSORY & PACKING MATERIAL

Part No.	Description
(USA)	
1-501-161-00	ANTENNA,FEEDER
1-506-305-00	F PLUG (FP-33)
1-551-734-11	CORD, CONNECTION (RK- 74A)
3-701-620-00	BAG, POLYETHYLENE
3-701-630-00	BAG, POLYETHYLENE
4-863-543-00	CUSHION
4-866-728-00	INDICATOR, STATION (F-1)
4-871-333-00	SHEET, PROTECTION
4-871-335-00	INDIVIDUAL CARTON
(UK)	
1-501-161-00	ANTENNA,FEEDER
1-551-734-11	CORD, CONNECTION (RK- 74A)
3-701-620-00	BAG, POLYETHYLENE
3-701-630-00	BAG, POLYETHYLENE
4-863-543-00	CUSHION
4-866-738-00	INDICATOR, STATION
4-866-739-00	INDICATOR, STATION (E-2)
4-871-333-00	SHEET, PROTECTION
4-871-335-00	INDIVIDUAL CARTON
(AEP)	
1-501-161-00	ANTENNA,FEEDER
1-551-734-11	CORD, CONNECTION (RK- 74A)
3-701-360-00	LABEL, TACK
3-701-620-00	BAG, POLYETHYLENE
3-701-630-00	BAG, POLYETHYLENE
4-863-543-00	CUSHION
4-866-738-00	INDICATOR, STATION
4-866-739-00	INDICATOR, STATION (E-2)
4-871-333-00	SHEET, PROTECTION
4-871-335-00	INDIVIDUAL CARTON

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COILS
- MMH : mH, UH : µH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C601 ⚠	1-123-350-00	ELECT 2200MF 20% 35V
C606 ⚠	1-123-323-00	ELECT 470MF 20% 16V
C609 ⚠	1-123-323-00	ELECT 470MF 20% 16V
C612 ⚠	1-123-376-00	ELECT 330MF 20% 63V
C616 ⚠	1-123-376-00	ELECT 330MF 20% 63V
C801 ⚠	1-130-456-11	FILM 0.022MF 250V (AEP,UK)
CF101	1-527-796-00	FILTER, CERAMIC*****(USA)
CF102	1-527-796-00	FILTER, CERAMIC*****(USA)
CF103	1-527-796-00	FILTER, CERAMIC*****(USA)
CF104	1-527-796-00	FILTER, CERAMIC*****(USA)
CF101	1-527-799-00	FILTER, CERAMIC*****(AEP,UK)
CF102	1-527-799-00	FILTER, CERAMIC*****(AEP,UK)
CF103	1-527-799-00	FILTER, CERAMIC*****(AEP,UK)
CF104	1-527-799-00	FILTER, CERAMIC*****(AEP,UK)
CP601 ⚠	1-102-394-00	CERAMIC 250V
CP602 ⚠	1-102-394-00	CERAMIC 250V
CP603 ⚠	1-102-394-00	CERAMIC 250V
CP604 ⚠	1-102-394-00	CERAMIC 250V
CP605 ⚠	1-102-394-00	CERAMIC 250V
D101	8-719-815-55	DIODE 1S1555
D102	8-719-815-55	DIODE 1S1555
D201	8-719-815-55	DIODE 1S1555
D401	8-719-912-00	DIODE MV-12N
D402	8-719-815-55	DIODE 1S1555
D403	8-719-815-55	DIODE 1S1555
D404	8-719-815-55	DIODE 1S1555
D405	8-719-815-55	DIODE 1S1555
D406	8-719-815-55	DIODE 1S1555
D501	8-719-815-55	DIODE 1S1555
D502	8-719-815-55	DIODE 1S1555
****	************	
****	************	
****	************	
D506	8-719-815-55	DIODE 1S1555
D507	8-719-815-55	DIODE 1S1555
D508	8-719-815-55	DIODE 1S1555
D509	8-719-815-55	DIODE 1S1555
D512	8-719-815-55	DIODE 1S1555
D601	8-719-200-02	DIODE 10E-2
D602	8-719-200-02	DIODE 10E-2
D603	8-719-910-65	DIODE HZ6B1L
D604	8-719-200-02	DIODE 10E-2
D605	8-719-200-02	DIODE 10E-2
D606	8-719-910-65	DIODE HZ6B1L
D607	8-719-200-02	DIODE 10E-2
D608	8-719-200-02	DIODE 10E-2
D609	8-719-910-65	DIODE HZ6B1L
D610	8-719-200-02	DIODE 10E-2
D611	8-719-200-02	DIODE 10E-2
D612	8-719-931-30	DIODE EQB01-30

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D613	8-719-931-15	DIODE EQB01-15
D614	8-719-200-02	DIODE 10E-2
D615	8-719-200-02	DIODE 10E-2
D616	8-719-913-02	DIODE HZ30-2L
D617	8-719-931-06	DIODE EQB01-06
D701	8-719-815-55	DIODE 1S1555
D702	8-719-815-55	DIODE 1S1555
****	************	
****	************	
D706	8-719-815-55	DIODE 1S1555
D707	8-719-815-55	DIODE 1S1555
D709	8-719-815-55	DIODE 1S1555
****	************	
D711	8-719-815-55	DIODE 1S1555
D729	8-719-815-55	DIODE 1S1555
D801	8-719-815-55	DIODE 1S1555
D901	8-719-900-48	DIODE SLR54GG
D902	8-719-900-48	DIODE SLR54GG
D903	8-719-900-48	DIODE SLR54GG
D904	8-719-900-48	DIODE SLR54GG
D905	8-719-900-48	DIODE SLR54GG
D906	8-719-900-48	DIODE SLR54GG
D907	8-719-900-48	DIODE SLR54GG
D908	8-719-900-48	DIODE SLR54GG
D909	8-719-905-45	DIODE SLR54GC
D910	8-719-905-45	DIODE SLR54GC
D911	8-719-905-45	DIODE SLR54GC
D912	8-719-905-45	DIODE SLR54GC
D913	8-718-905-40	DIODE SLR54URC
D914	8-719-900-57	DIODE GL5HY5
D915	8-719-922-41	DIODE SLP241B
D916	8-719-922-41	DIODE SLP241B
D917	8-719-922-41	DIODE SLP241B
D918	8-719-922-41	DIODE SLP241B
D919	8-719-922-41	DIODE SLP241B
D920	8-719-815-55	DIODE 1S1555
D921	8-719-815-55	DIODE 1S1555
D922	8-719-815-55	DIODE 1S1555
D923	8-719-815-55	DIODE 1S1555
D924	8-719-815-55	DIODE 1S1555
D925	8-719-815-55	DIODE 1S1555
D926	8-719-815-55	DIODE 1S1555
D927	8-719-815-55	DIODE 1S1555
FE101	1-463-346-00	FRONT END
FE901	1-519-208-00	INDICATOR TUBE, FLUORESCENT
IC101	8-759-812-31	IC LA1231
IC102	8-759-312-02	IC HA1202
IC201	8-759-745-60	IC NJM4560D
IC202	8-759-240-66	IC TC4066BP
IC203	8-759-312-23	IC HA11223W

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COILS

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC204	8-759-745-60	IC NJM4560D
IC401	8-759-607-78	IC CX-778
IC501	8-759-153-73	IC UPD553C-073
IC502	8-757-611-00	IC CX-761A
IC503	8-759-140-11	IC UPD4011C
IC504	8-759-990-23	IC TMS1024N2L
IC505	8-759-100-67	IC UPA67C
IC506	8-759-100-67	IC UPA67C
IC701	8-759-904-89	IC TL489CP
IFT101	1-404-312-00	TRANSFORMER, IF
IFT102	1-404-250-00	TRANSFORMER, DISCRIMINATOR
L101	1-407-169-XX	MICRO INDUCTOR 100UH
L102	1-407-169-XX	MICRO INDUCTOR 100UH
L103	1-407-169-XX	MICRO INDUCTOR 100UH
L104	1-407-165-XX	MICRO INDUCTOR 47UH
L105	1-407-190-00	MICRO INDUCTOR 10UH
L106	1-407-190-00	MICRO INDUCTOR 10UH
L401	1-407-169-XX	MICRO INDUCTOR 100UH
L402	1-407-169-XX	MICRO INDUCTOR 100UH
LPF201	1-231-422-00	FILTER, LOWPASS
LPF202	1-231-421-00	FILTER, LOWPASS
LPF203	1-231-421-00	FILTER, LOWPASS
Q101	8-729-216-13	TRANSISTOR 2SK161
Q102	8-729-671-14	TRANSISTOR 2SC710-13
Q103	8-729-671-14	TRANSISTOR 2SC710-13
Q104	8-729-671-14	TRANSISTOR 2SC710-13
Q105	8-729-671-14	TRANSISTOR 2SC710-13
Q106	8-729-671-14	TRANSISTOR 2SC710-13
Q107	8-729-671-14	TRANSISTOR 2SC710-13
Q108	8-729-803-63	TRANSISTOR 2SC536SP
Q109	8-729-671-13	TRANSISTOR 2SC710-13
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-663-47	TRANSISTOR 2SC1364
Q205	8-729-803-63	TRANSISTOR 2SC536SP
Q401	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q402	8-729-665-47	TRANSISTOR 2SC1362
Q501	8-729-612-77	TRANSISTOR 2SA1027R
Q502	8-729-853-63	TRANSISTOR 2SC536SP
Q503	8-729-612-77	TRANSISTOR 2SA1027R
Q504	8-729-853-63	TRANSISTOR 2SC536SP
Q505	8-729-853-63	TRANSISTOR 2SC536SP
Q506	8-729-853-63	TRANSISTOR 2SC536SP
Q507	8-729-853-63	TRANSISTOR 2SC536SP
Q601	8-729-382-62	TRANSISTOR 2SC1986
Q602	8-729-663-47	TRANSISTOR 2SC1364
Q603	8-729-663-47	TRANSISTOR 2SC1364
Q604	8-729-173-13	TRANSISTOR 2SB731

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q605	8-729-382-61	TRANSISTOR 2SC1986
Q606	8-729-180-93	TRANSISTOR 2SD809
Q607	8-729-173-13	TRANSISTOR 2SB731
Q608	8-729-180-93	TRANSISTOR 2SD809
Q704	8-729-853-63	TRANSISTOR 2SC536SP
Q706	8-729-853-63	TRANSISTOR 2SC536SP
Q707	8-729-853-63	TRANSISTOR 2SC536SP
Q708	8-729-853-63	TRANSISTOR 2SC536SP
Q709	8-729-612-77	TRANSISTOR 2SA1027R
Q710	8-729-612-77	TRANSISTOR 2SA1027R
Q711	8-729-612-77	TRANSISTOR 2SA1027R
Q712	8-729-853-63	TRANSISTOR 2SC536SP
Q713	8-729-853-63	TRANSISTOR 2SC536SP
Q714	8-729-853-63	TRANSISTOR 2SC536SP
Q715	8-729-663-47	TRANSISTOR 2SC1364
R104	⚠ 1-247-097-00	CARBON 39 5% 1/4W F
R129	⚠ 1-247-083-00	CARBON 10 5% 1/4W F
R208	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R209	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R219	⚠ 1-247-109-00	CARBON 230 5% 1/4W F
R229	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R233	⚠ 1-247-107-00	CARBON 100 5% 1/4W F
R234	⚠ 1-247-097-00	CARBON 39 5% 1/4W F
R601	⚠ 1-247-079-00	CARBON 4.7 5% 1/4W F
R607	⚠ 1-247-083-00	CARBON 10 5% 1/4W F
R610	⚠ 1-247-083-00	CARBON 10 5% 1/4W F
R613	⚠ 1-247-083-00	CARBON 10 5% 1/4W F
R617	⚠ 1-247-083-00	CARBON 10 5% 1/4W F
R801	⚠ 1-202-725-00	COMPOSITION 3.3M 10% 1/2W***(USA)
RT101	1-226-238-00	RES, ADJ, CARBON 50K
RT102	1-226-238-00	RES, ADJ, CARBON 50K
RT201	1-226-238-00	RES, ADJ, CARBON 50K
RT202	1-226-238-00	RES, ADJ, CARBON 50K
RT203	1-226-235-00	RES, ADJ, CARBON 5K
RT204	1-226-239-00	RES, ADJ, CARBON 100K
RT205	1-226-237-00	RES, ADJ, CARBON 20K
RT206	1-226-237-00	RES, ADJ, CARBON 20K
RT401	1-226-233-00	RES, ADJ, CARBON 1K
RY201	1-515-297-00	RELAY, REED
S801	⚠ 1-553-318-00	SWITCH, PUSH (POWER)****(AEP,UK)
S801	⚠ 1-553-319-00	SWITCH, PUSH (POWER)****(USA)
S802	1-553-428-00	SWITCH, SLIDE
S901	1-552-539-00	SWITCH, KEY BOARD
S902	1-552-539-00	SWITCH, KEY BOARD
S903	1-552-539-00	SWITCH, KEY BOARD
S905	1-552-539-00	SWITCH, KEY BOARD
S906	1-552-539-00	SWITCH, KEY BOARD
S907	1-552-539-00	SWITCH, KEY BOARD
S908	1-552-539-00	SWITCH, KEY BOARD

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- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S909	1-552-539-00	SWITCH, KEY BOARD
S910	1-552-539-00	SWITCH, KEY BOARD
S911	1-552-539-00	SWITCH, KEY BOARD
S912	1-552-539-00	SWITCH, KEY BOARD
S913	1-552-539-00	SWITCH, KEY BOARD
S914	1-552-539-00	SWITCH, KEY BOARD
S915	1-552-539-00	SWITCH, KEY BOARD
S916	1-552-539-00	SWITCH, KEY BOARD
S917	1-552-539-00	SWITCH, KEY BOARD
VS801⚠	1-552-963-00	VOLTEGE SELECTER****(AEP,UK)
X401	1-527-731-00	OSCILLATOR, CRYSTAL

ELECTROLYTIC CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (μF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

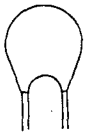
RATING →: Use the high voltage rated one.

CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

CAP. (μF)	RATING			CAP. (μF)				CAP. (μF)			
	50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.		50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

TANTALUM CAPACITORS



→: Use the high voltage rated one.

CAP. (μF)	RATING						
	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS

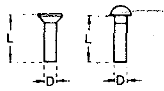
CAP. (μF)	RATING					
	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

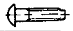
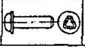
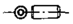
HARDWARE NOMENCLATURE

Screw: – P 3 x 10
L: *Length in mm*
D: *Diameter in mm*
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:
N 3
Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation

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